

# **NOKIA**

## **Nokia MetroSite EDGE Base Station**

# **Field Upgrade**

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# 1 Overview of field upgrade

This document provides instructions for upgrading an existing Nokia MetroSite BTS installation. Field upgrades are done for the following reasons:

- Upgrade of TRXs from GSM to GSM/EDGE transmission (including upgrade from 1W TRXs, if relevant).
- Upgrade of BTS capacity by chaining to include up to 12 TRXs.

This chapter describes the upgrade options in more detail and the working order for the upgrade procedures.

## 1.1 GSM to GSM/EDGE upgrade

A GSM MetroSite BTS installation is upgraded to EDGE transmission by replacing the GSM TRX units with 5W GSM/EDGE TRXs or by adding 5W GSM/EDGE TRXs to any spare TRX slots in the BTS.

A software upgrade to CX 3.0 or later is also required for upgrade to EDGE. This is done locally at the BTS during commissioning with Nokia BTS Manager.

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### Note

With the 5W GSM/EDGE TRXs, MetroSite can operate with either GSM or EDGE transmission.

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If the MetroSite BTS still contains 1W TRXs, a higher capacity cooling fan and a different power supply unit must also be fitted to the BTS when the TRXs are upgraded to 5W GSM/EDGE TRXs.

### 1.1.1 Working order for GSM/EDGE upgrade

The procedures to be completed and the working order in which they are done are presented below.



### Upgrading TRXs to GSM/EDGE

1. Read the information in Chapter 2 of this document, *Preparing for upgrade*. This chapter contains essential information about when to power down the BTS.
2. Check the type of TRX units currently installed to confirm that they are 5W TRXs. For 1W TRX installations, see Section 1.1.2 this document.
3. Replace the existing TRX units with 5W GSM/EDGE TRXs, as described in Chapter 5.1 of this document, *Upgrading by replacing TRXs*.

OR

Install new 5W GSM/EDGE TRXs to any spare TRX slots in the BTS, as described in Chapter 5.2 of this document, *Upgrading by adding TRXs*.

4. Follow the procedures for *Commissioning for upgrade* in Chapter 7 of this document.
5. Follow the procedures for *Completing the upgrade* in Chapter 8 of this document.

## 1.1.2 Working order for 1W TRX power upgrade

The procedures to be completed and the working order in which they are done are presented below.



### Upgrading TRXs from 1W to 5W

1. Read the information in Chapter 2 of this document, *Preparing for upgrade*. This chapter contains essential information about when to power down the BTS.
2. Follow the procedures for *Replacing the power supply unit* in Chapter 3 of this document.
3. Replace the existing TRX units with GSM/EDGE TRXs, as described in Chapter 5 of this document, *Replacing or adding new TRX units*.
4. Follow the procedures for *Replacing the fan unit* in Chapter 4 of this document.

5. Follow the procedures for *Commissioning for upgrade* in Chapter 7 of this document.
6. Follow the procedures for *Completing the upgrade* in Chapter 8 of this document.

## 1.2 Capacity upgrade by BTS chaining

The capacity of a Nokia MetroSite BTS installation can be upgraded by connecting one or two slave BTSs to the master BTS with chaining cables via the interface units. Up to 12 TRXs can be connected and set up as one BCF unit. Only the master BTS needs a transmission unit.

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### Note

All BTS cabinets in a chain must be upgraded to the GSM/EDGE standard.

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### 1.2.1 Working order for a MetroSite EDGE BTS chaining upgrade

The procedures to be completed and the working order in which they are done are presented below.



#### Chaining MetroSite BTSs

1. Read the information in Chapter 2 of this document, *Preparing for upgrade*. This chapter contains essential information about when to power down the BTS.
2. Follow the procedures for *Chaining Nokia MetroSite EDGE BTSs* in Chapter 6 of this document.
3. Follow the procedures for *Commissioning the BTS chain* in Chapter 7.2 of this document.
4. Follow the procedures for *Completing the upgrade* in Chapter 8 of this document.



# 2

## Preparing for upgrade

Before starting any upgrade procedures, the procedures and precautions presented in this chapter should be read and implemented as required.



### WARNING

**Some of the upgrade procedures require the BTS to be powered down. Read Section 2.1, *Power supply precautions*, in this chapter before beginning the upgrade.**

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### 2.1 Power supply precautions



### WARNING

**Potentially lethal voltages!**

**The BTS power must be switched OFF at the main disconnect device or circuit breaker before starting maintenance work which involves the risk of electric shocks.**

---

Prevent injury to personnel or damage to the BTS equipment by following the power supply rules for maintenance and upgrade procedures presented in Table .

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### Note

The switch on the power supply unit (PSU) of the BTS has two positions: ON and Stand-by.

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Table 1. Power supply rules during BTS upgrade or maintenance procedures

<b>BTS upgrade or maintenance procedure</b>	<b>Power supply rule for BTS</b>
Replacing a power supply unit or PSU cable	<ul style="list-style-type: none"> <li>• Power OFF at main disconnect device</li> <li>• PSU switch to Stand-by</li> </ul>
Replacing a grounding connection	<ul style="list-style-type: none"> <li>• Power OFF at main disconnect device</li> <li>• PSU switch to Stand-by</li> </ul>
Disconnecting or connecting antenna or diversity cables on a TRX	PSU can be switched to ON but TRX must be blocked
Replacing a TRX	PSU can be switched ON but TRX must be blocked
Disconnecting or connecting transmission cables	PSU can be switched ON but TRX must be blocked
Replacing a transmission unit	PSU switch to Stand-by
Connecting or disconnecting cables to the interface unit (VIFA)	PSU switch to Stand-by is advised
Connecting cables to the interface unit for BTS chaining	PSU switch to Stand-by
Replacing an interface unit	PSU switch to Stand-by
Replacing a fan unit	<ul style="list-style-type: none"> <li>• Power OFF at main disconnect device</li> <li>• PSU switch to Stand-by</li> </ul>

## 2.2 Checking warnings and cautions

The warnings and cautions applicable to the MetroSite BTSs are detailed in *Nokia MetroSite EDGE Base Station: Warnings and Cautions*. Read these before beginning a field upgrade.

## 2.3 Checking the upgrade deliveries

Check that the items delivered for the upgrade match the items required in your upgrade/installation plan. Check the condition of the delivered items to confirm that they are not damaged.

### 2.3.1 Parts required for a GSM/EDGE upgrade

Refer to Table 2 for details of the parts required for a GSM/EDGE upgrade.

Table 2. Parts required for a GSM/EDGE upgrade on the Nokia MetroSite EDGE Base Station

Upgrade type	Parts required
5W GSM to 5W GSM/EDGE upgrade	<ul style="list-style-type: none"> <li>5W GSM/EDGE TRX units</li> <li>Nokia SiteWizard with CX 3.0 software and Nokia BTS Manager 3.0 or later.</li> </ul>
1W GSM to 5W GSM/EDGE upgrade	<ul style="list-style-type: none"> <li>5W GSM/EDGE TRX units</li> <li>Nokia SiteWizard with CX 3.0 software and Nokia BTS Manager 3.0 or later.</li> <li>HVSA, HVSB, HVSC, or HVSD type power supply unit (see Chapter 3 for specifications)</li> <li>HVMF type high capacity fan unit</li> <li>HVCU type BTS cover, for use with high capacity fan</li> </ul>

### 2.3.2 Parts required for a BTS chaining upgrade

The following parts are required for a BTS chaining upgrade. The number of items depends on whether there will be one or two slave cabinets in the chain.

- One or two Nokia MetroSite EDGE BTS base stations with GSM/EDGE TRXs but without transmission units (depending on the number of slave BTS cabinets planned).

---

#### Note

The BTS cabinets will need to be installed as described in the document, *Nokia MetroSite EDGE Base Station: Installation*. The parts required for BTS installation are listed in that document.

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- One or two Nokia MetroSite BTS extension cable kits (depending on the number of slave BTS cabinets planned). The kits contain a cable and a termination connector. There are three different lengths of extension cable, as follows:
  - extension cable kit, 3 metres (part 467614A)
  - long extension cable kit, 5 metres (part 469585A)
  - short extension cable kit, 1 metre (part 469584A)
- Nokia SiteWizard with CX 3.0 software or later, and including Nokia BTS Manager 3.0 or later.

## 2.4 Checking the site for an upgrade

Before beginning the upgrade, the site should be checked by the site supervisor. The site should be checked against a site preparation checklist and confirmed as correct according to the site drawings and plans.

The BTS site should be readily prepared according to the specifications given in *Nokia MetroSite EDGE Base Station: Requirements for Installation and Operation*. In the case of a BTS chaining upgrade, the extra BTS cabinets should be already installed and checked.

If the site does not meet the requirements in the checklist, complete the site deficiency reports and report to the Installation Manager / Site Manager before continuing with the upgrade.

### 2.4.1 Checking environmental conditions on the site

Check the site conditions before starting the upgrade procedures. In the case of precipitation (rain, snow or sleet), the site must be weather-guarded during the upgrading procedure to prevent damage to the units when the BTS cover is removed. Note the following:



- Rain or snow must not be allowed to fall on the internal surfaces of the equipment.
- The cover must not be removed during conditions where dust can be blown into the cabinet.

## 2.5 Checking the installation equipment

Table 3 presents a list of the tools and other equipment required for upgrading a Nokia MetroSite BTS.

Table 3. Tools and other equipment required for a field upgrade

Part	Notes
Laptop PC	The PC should be compatible with Nokia SiteWizard software version 3.0.
LMP cable	For connecting BTS Manager software to the BTS via the LMP port on the interface unit
Torque driver with 60 mm (2.4 in) shaft and: <ul style="list-style-type: none"> <li>• T10 and T25 Torx bits</li> <li>• 4 mm Allen bit</li> </ul>	Required for: <ul style="list-style-type: none"> <li>• Unit retaining screws</li> <li>• Cable entry block screws</li> </ul>
Torque key	For attaching diversity cables
Cable ties and side cutting pliers	For securing cable routing out of the BTS
ESD wrist strap	To prevent electro-static discharge damage

## 2.6 Removing the BTS cover

Before removing the cover of the BTS, refer to the information on power supply precautions and environmental conditions on the site, presented earlier in this chapter.

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### Note

Removing the cover issues an alarm to the BSC. Make sure that the BSC/NMS personnel is notified before removing the cover.

---



### Removing the BTS cover

1. Unlock the cabinet lock at the bottom of the BTS.
2. Remove the cover by sliding it upwards to disengage the hooks at the side of the cover from the locking guides on the BTS chassis.
3. When the cover is free, pull it away from the cabinet and hang it on the hook at the top left side of the chassis.

You can also remove the cover completely to place it on the floor. Remove the safety strap before pulling the cover away (see Figure 14).

## 2.7 ESD protection



### Caution

Some units in the MetroSite BTS contain electro-static sensitive devices. The BTS is labelled with an electro-static sensitive device symbol as shown in Figure 1.

Always use an anti-static wrist strap connected to the cabinet ESD stud, whenever handling electro-static sensitive units. The wrist strap and connection stud is shown in Figure 2.

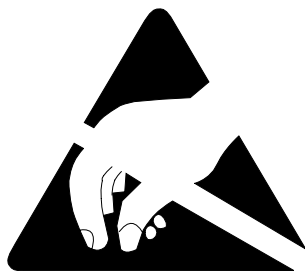


Figure 1. Electro-static sensitive device symbol

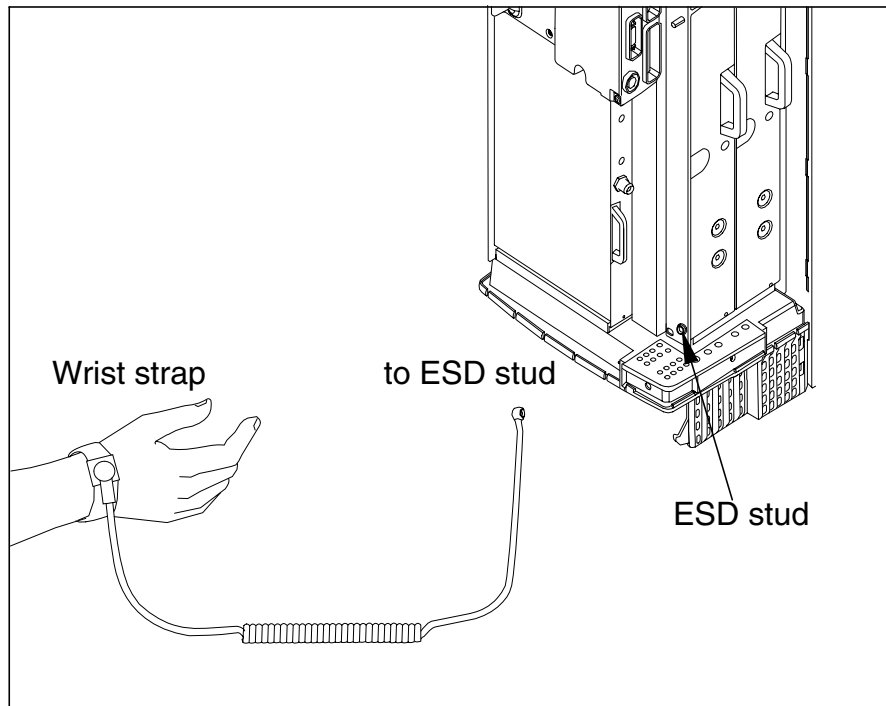


Figure 2. Connecting the antistatic wrist strap



# 3

## Replacing the power supply unit

The power supply unit (PSU) must be replaced only if the MetroSite BTS installation is being upgraded from a 1W TRX configuration. See Table 4 for the correct type of PSU replacements for a 5W TRX installation.

---

### Note

The PSU does not need replacing for 5W GSM to 5W GSM/EDGE field upgrades.

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Table 4. PSU types used in MetroSite base stations

Input voltage	1W TRX BTS installations	5W TRX BTS installations
AC 230 V	VSAA	HVSA
AC 110 V	VSAB	HVSB
DC +24 V	-	HVSC
DC -48 V	VSDA	HVSD

### 3.1 PSU removal



#### WARNING

**Make sure that the power is turned OFF at the main disconnect device before working on the PSU.**

---



**Removing the PSU**

1. Turn the PSU power switch to Stand-by and turn the power OFF at the BTS's main power disconnect device.
2. Open the power connector cover on the PSU by removing the retaining screws with a T10 Torx driver (see Figure 3).
3. Unplug the power supply cable from the PSU.
4. Loosen the unit's upper and lower retaining screws on the mounting brackets using a T10 Torx driver.
5. Slide the PSU unit out until it comes to a stop, then tilt the unit from the top and remove it (see Figure 4).

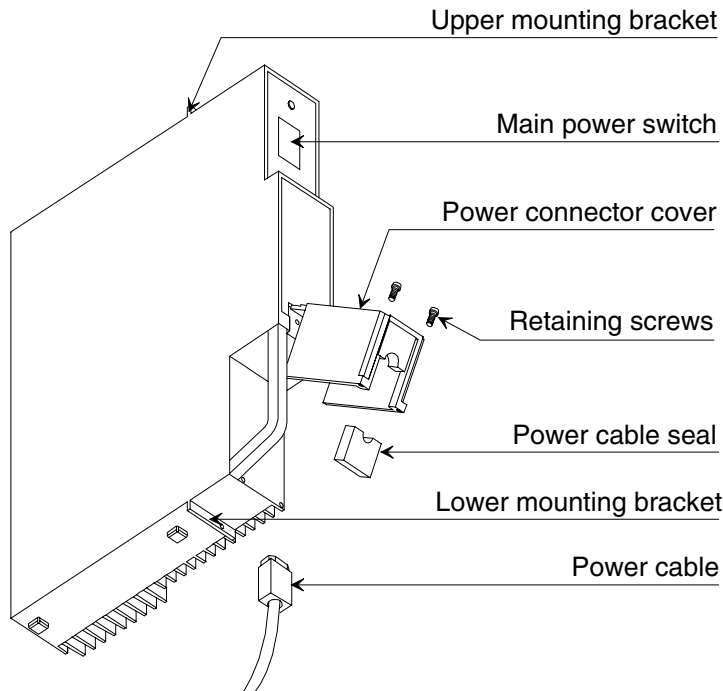


Figure 3. Power supply unit

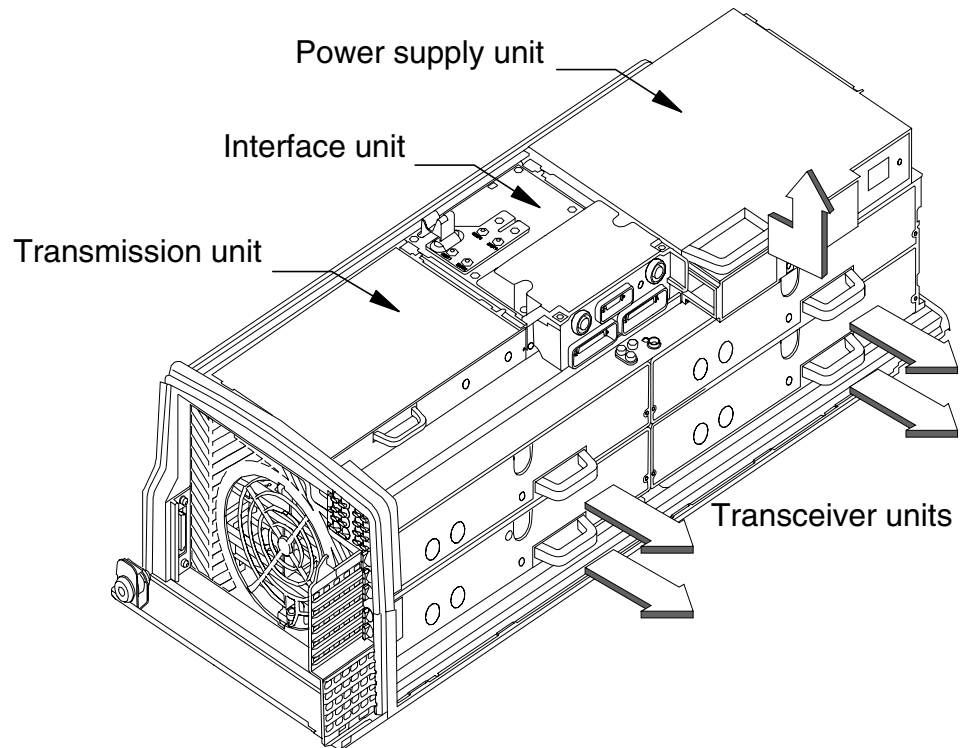


Figure 4. Removing the units

## 3.2 PSU installation



### Installing the new PSU

1. Slide the PSU into the appropriate slot. See Figure 4.
2. Place the PSU into the bottom runner then push the top of the unit forward into the clearance slots provided in the top runners.
3. Press the unit carefully into the connector on the backplane. Do not use excessive force!
4. Tighten the two PSU mounting screws on the upper and lower mounting brackets using a T10 Torx torque driver. Tighten to 1.5 Nm (1.1 lb ft).
5. Loosen the two T10 Torx retaining screws on the connector cover and open the cover. See Figure 3.

6. Plug the power supply cable connector into the PSU power input socket.
7. Fit the power cable seal into the power connector cover. Close the cover and tighten the retaining screws.
8. Turn the power ON at the BTS's main power disconnect device and then turn the PSU switch to the ON position.



# 4 Replacing the cooling fan

The cooling fan assembly must be replaced only if the MetroSite BTS installation is being upgraded from a 1W TRX configuration. The VMFA fan type fan must be replaced by an HVMF type, high capacity cooling fan.

The BTS cover also needs replacing if the cooling fan is upgraded. The upgraded version of the BTS cover (HVCU or WCUA) allows for the better ventilation provided by the high power cooling fan.

---

## Note

The cooling fan does not need replacing for 5W GSM to 5W GSM/EDGE field upgrades.

---

The cooling fan assembly is located on the bottom of the BTS cabinet. For upgrade, the complete fan assembly is removed and replaced with the HVMF fan upgrade kit, which includes the HVMF fan and complete fan assembly.

## 4.1 Removing the VMFA cooling fan



---

### WARNING

**Make sure that the power is turned OFF at the main disconnect device before working on the fan unit.**

---

Complete the following procedures to remove the fan assembly.



### Removing the cable entry block

1. Unclip and slide the cable cover towards you (see Figure 13).

2. Disengage and remove the cable cover support plate.
3. Remove all connecting cables to the units.

---

**Note**

All connecting cables must be removed in order to replace the cooling fan outer sealing gasket.

---

4. Detach the outer sealing gasket at the point where it covers the cable entry block, see (A) in Figure 5.
5. Remove the two 4 mm (0.157 in) Allen screws on the cable entry block. See (B) in Figure 5.
6. Open the cable entry block at the point where the cables are routed. See Figure 8.
7. Disengage the cables from the cable entry block.

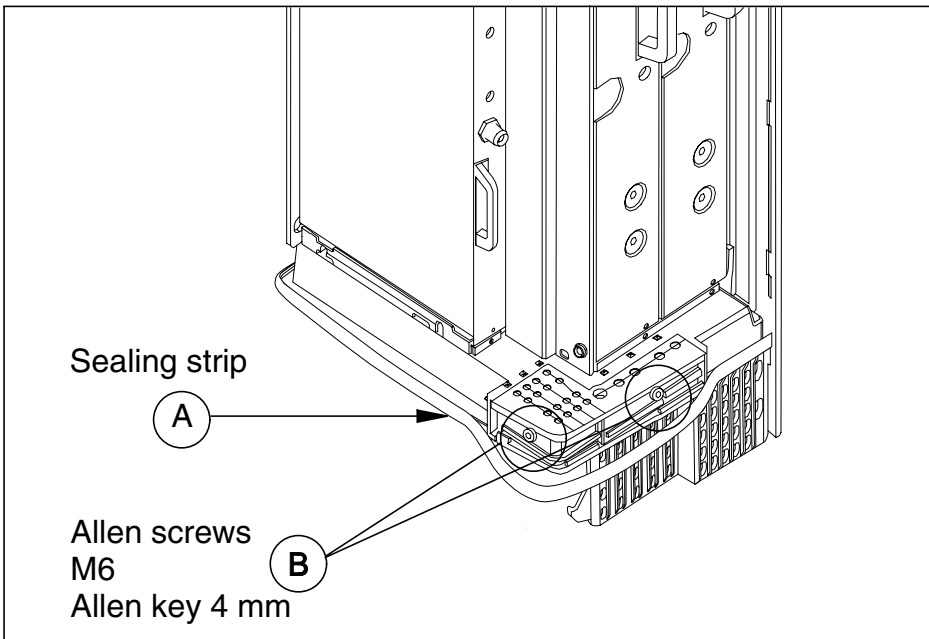


Figure 5. Sealing strip and cable entry block



### Removing the VMFA fan assembly

1. Remove and retain the fan assembly holding screws as follows (see Figure 6):



#### Caution

When the four fan assembly holding screws have been removed, the fan unit is only supported in the cabinet by the backplane connector. Do not let go of the fan assembly after releasing the screws.

- a. Three T10 Torx screws on the right-hand side of the assembly.
- b. One T25 Torx screw on the front of the assembly.

Hold the fan unit in place and proceed to the next step.

2. Loosen cooling fan assembly from the backplane connector by moving it slightly backwards and forwards in the cabinet. The backplane connector is on the left hand side of the cabinet.

Pull the fan assembly out of the connector and out from the bottom of the cabinet.

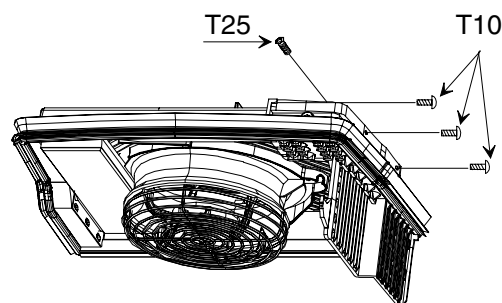


Figure 6. VMFA cooling fan assembly mounting screws

## 4.2 Installing the HVMF high capacity cooling fan



### WARNING

**Make sure that the power is turned OFF at the main disconnect device before working on the fan unit.**

Complete the following procedure to fit the HVMF fan assembly.



### Install the HVMF fan assembly

1. Lift the new HVMF fan assembly to the bottom of the cabinet and align the connector on the assembly with the backplane connector on the cabinet.
2. Push the assembly into the backplane connector. Do not use excessive force!
3. Refit the four fan assembly mounting screws in their respective slots (see Figure 7):
  - a. 3 x T10 Torx on the right hand side of the assembly.
  - b. One T25 Torx at the front of the assembly.
4. Refit all the connecting cables:
  - a. Open the cable entry block and re-thread all cables through the outer fan sealing gasket.
  - b. Reconnect all the cables.
  - c. Place the cables into their respective slots in the cable entry block (see Figure 8).
5. Refit and tighten the two 4 mm (0.157 in) Allen screws on the cable entry block (see Figure 5).
6. Refit the outer fan sealing gasket.

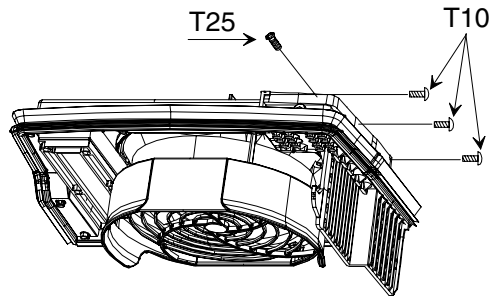
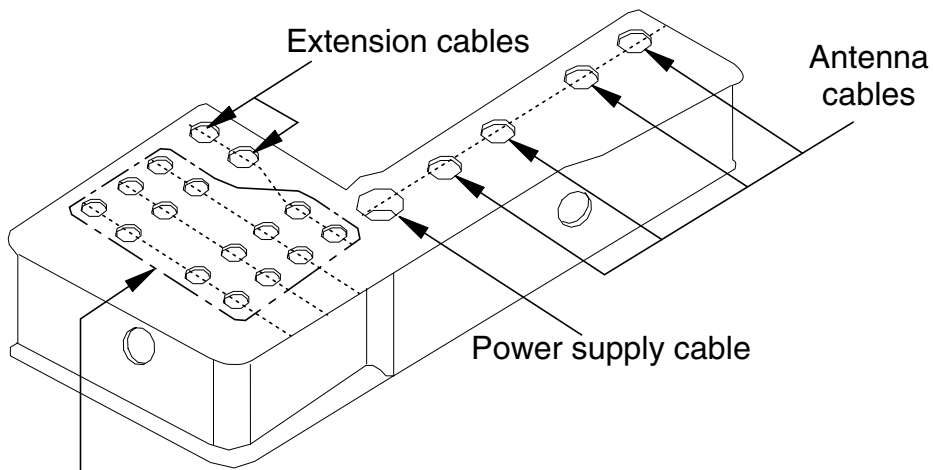


Figure 7. HVMF cooling fan assembly and mounting screws



- Grounding cable, 1 pc
- Transmission cables, max 8 pcs
- External alarms and controls

Figure 8. Cable entry block, cable allocations



# 5

## Replacing or installing new TRX units

A MetroSite BTS can be upgraded to EDGE by replacing 1W or 5W GSM TRX units with 5W GSM/EDGE units.

Additional TRXs can also be added to a single BTS (up to four TRXs) in order to increase the BTS's capacity or to add EDGE capability.

A 5W GSM/EDGE TRX can be commissioned to operate on GSM or GSM/EDGE transmission.

---

### Note

It is possible for a BTS to contain a mixture of 5W GSM and 5W GSM/EDGE TRX units.

---

Figure 9 shows the slot order of TRX units in a MetroSite BTS. TRX 1 is always the master TRX.

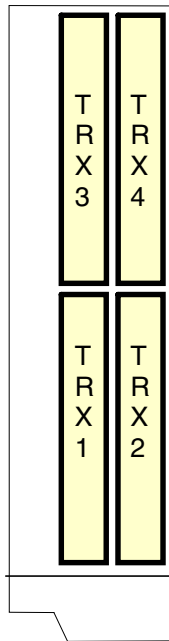


Figure 9. TRX slot order

## 5.1 Upgrading by replacing TRXs

### 5.1.1 Removing TRX units



**Caution**

Refer to the power supply requirements in Table 1 before working on the TRX units.

To make it easier to remove the antenna connectors, remove the TRX units in the following order: TRX 3, 4, 1, 2 (see Figure 9).



**Removing TRX units**

1. Connect your Nokia BTS Manager PC to the LMP connector on the interface unit.



- Block the TRX using Nokia BTS Manager (if the sector is not already locked from the BSC). In the *Supervision - Equipment View* window, right click on the TRX image and select the BLOCK button in the *Object Properties* dialogue window (see Figure 10).

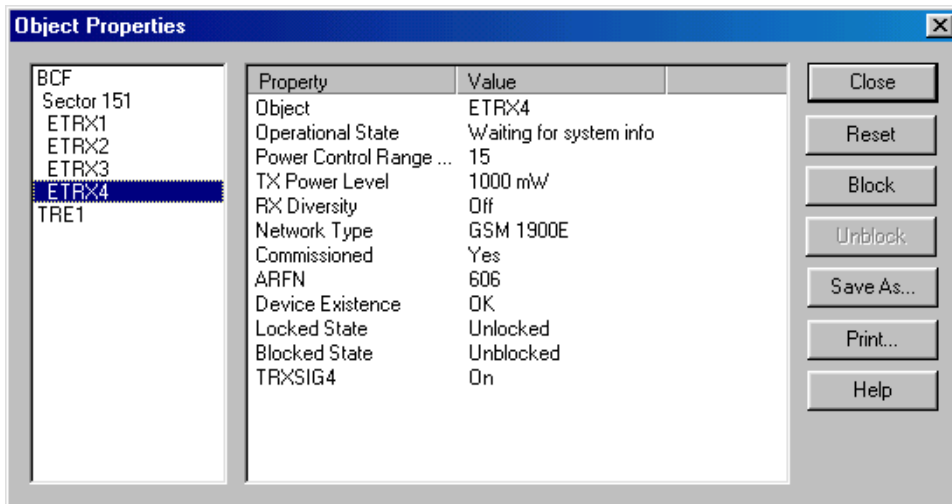


Figure 10. Example of blocking a TRX in Nokia BTS Manager

- Make a note of the TRX cabling.
- Disconnect the antenna and diversity cables from the TRX units to be removed.
- Loosen the units' two retaining screws using a T10 Torx screwdriver.
- Slide each TRX unit outwards to disengage it from the backplane connector and then pull the unit upwards to remove it (see Figure 4). Use the handle on the front of the TRX for pulling the unit.

## 5.1.2 Installing TRX units

In order to reach and tighten the antenna connectors with a torque spanner, it is necessary to install the TRX units in the following order: TRX 4, 3, 2, 1 (see Figure 9). The master TRX is located in slot 1.

---

### Note

If you are replacing a master TRX in a single TRX installation or increasing the number of TRXs, refer to *Nokia MetroSite EDGE Base Station: Maintenance* for more detailed information.

---



### Installing TRX units

1. Slide the unit into the appropriate slot. See Figure 11.
2. Press each replacement unit carefully into the backplane to engage it in the connector. Do not use excessive force!
3. Fix and tighten the unit retaining screws to 1.5 Nm (1.11 lb ft) using a T10 Torx screwdriver.
4. Reconnect the diversity cables to form the planned diversity configuration. Refer to *Nokia MetroSite EDGE Base Station: Installation* for more information on diversity cabling.
5. Reconnect the antenna connectors according to the sectoring solution planned. Use a torque spanner/wrench to tighten the SMA type connectors to 1 Nm (0.74 lb ft).
6. If new TRX units have been added to replace formerly empty slots (fitted with shield units), route the associated cables through the cable entry block and secure them with cable ties. See Figure 13.

The cable entry block must be removed in order to open it and route new cables through. Use a torque driver with a 4 mm Allen bit to remove and replace the two cable entry block screws.

7. Run the TRX test from Nokia BTS Manager (optional).
8. With Nokia BTS Manager, right-click the BCF object in the *Equipment View* window and carry out a BCF Object Reset, or, if locked from the BSC/NMS, request an unlock from the BSC/NMS (the BCF reset is automatic in this case).

9. If the green LED is lit on the TRX after the replacement procedure, the BTS is in service. If the LED is yellow or red, check the alarms and run the TRX test from the BSC/NMS.

## 5.2 Upgrading capacity by adding TRXs

The capacity of a single MetroSite EDGE BTS can be expanded to include up to four TRXs. For information on coverage patterns and sectoring, refer to *Nokia MetroSite EDGE Base Station: Product Description*.

The capacity of a MetroSite EDGE BTS can also be expanded by chaining. See Chapter 6 of this document for information on *Chaining Nokia MetroSite EDGE BTSs*.

---

### Note

The new TRX object must be created at the BSC/NMS before the new TRX can start operation.

---



### Adding a new TRX

1. Remove the shielding from the slot which is going to be populated with a new TRX. Use a Torx T10 driver to remove the retaining screws of the shielding unit.
2. Unpack the new TRX.
3. Insert the new TRX into the slot.
4. Connect your Nokia BTS Manager laptop PC to the LMP connector on the interface unit. .
5. Select TRANSMISSION | TRAFFIC MANAGER from the main menu in BTS Manager.
6. Allocate transmission capacity to the new TRX.
7. Run the TRX test from BTS Manager (optional).
8. If any objects are locked, unlock them from the BSC/NMS.

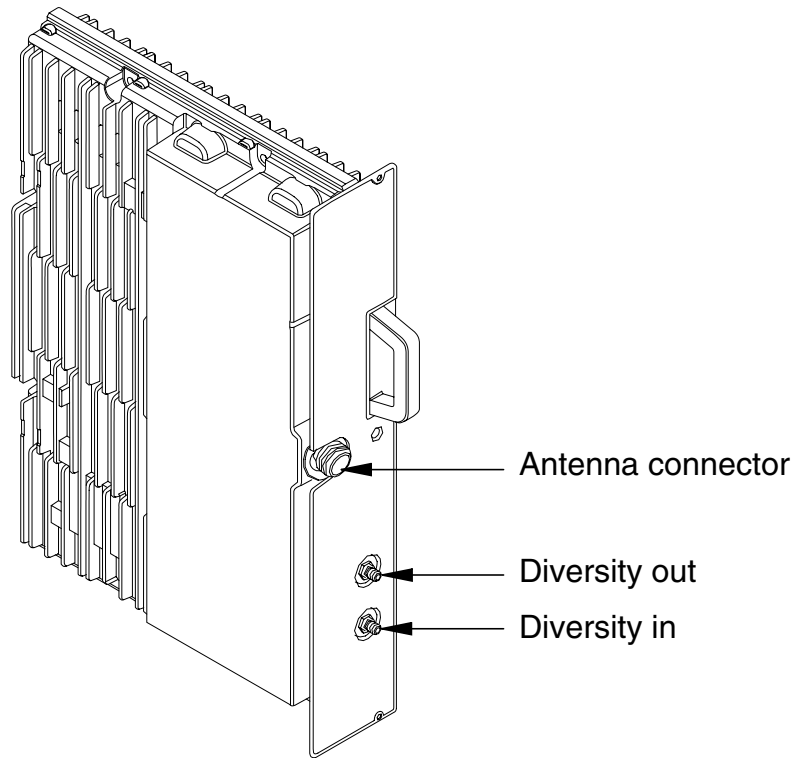


Figure 11. Nokia MetroSite EDGE Base Station 5W GSM/EDGE TRX unit

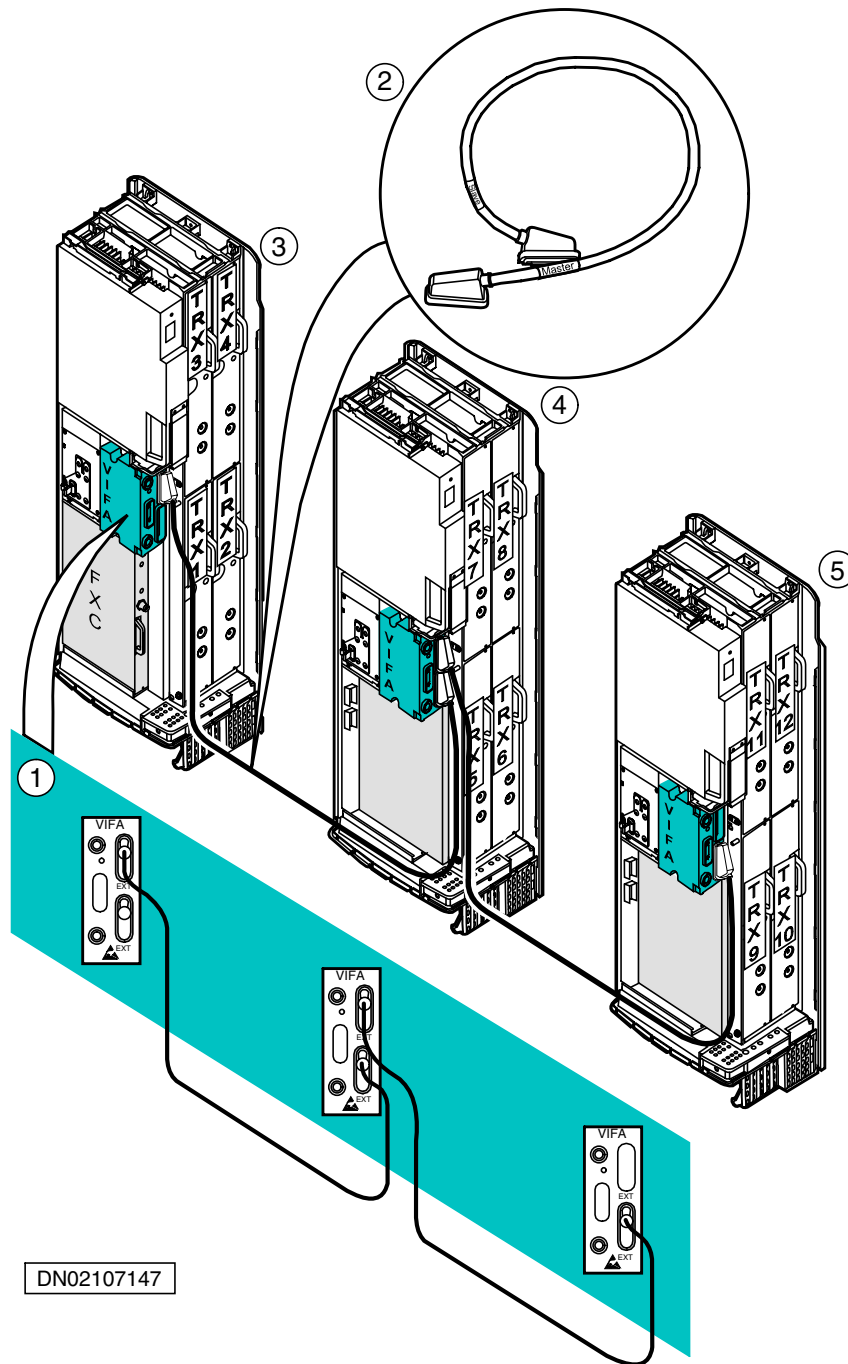
# 6 Chaining Nokia MetroSite EDGE BTSs

One or two Nokia MetroSite EDGE BTS cabinets can be added as slave cabinets to a master BTS, increasing the capacity to anything between five and 12 TRXs in one BCF object.

Chaining is done by connecting chaining cables from the interface unit (VIFA) of the master BTS to the interface unit of the slave BTS. If a three cabinet chain is required, a further cable is used to connect the first slave to the second slave in series. See Figure 12 for an illustration of the chaining connection.

The following requirements apply to the chaining feature:

- An FXC transmission unit is required in the master BTS. The slave BTS cabinets do not require a transmission unit.
- TRX 1 in the master BTS is the master TRX for the chained unit.
- CX 3.0 software or later must be loaded to the BTS from the BSC.



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**Legend:**

- 1 Connections at the VIFA interface units. A two BTS chain is also possible. A termination connector is fitted to the first (master cabinet) "EXT" connector in the chain (connector supplied in the extension cable kit).
- 2 MetroSite BTS extension cable (chaining cable). The cable has a "master" connector on one end and a "slave" connector

- at the other. Three different lengths of cable are available: 1, 3 and 5 metres.
- 3 Master BTS cabinet, with FXC transmission unit and TRXs 1 to 4. TRX 1 is the master TRX for the chain.
  - 4 Slave BTS cabinet 1, with TRXs 5 to 8. Fewer TRXs are possible. A transmission unit *must not* be fitted.
  - 5 Slave BTS cabinet 2, with TRXs 9 to 12. Fewer TRXs are possible. A transmission unit *must not* be fitted.

Figure 12. Chaining connection for three Nokia MetroSite EDGE base stations

## 6.1 Setting up a chaining connection

Follow the procedure to set up a chaining connection.



### Connecting MetroSite BTSs in a chain

1. Refer to your upgrade/installation plan and install the extra BTS cabinets as required. See the documents *Nokia MetroSite EDGE Base Station: Requirements for Installation and Operation* and *Nokia MetroSite EDGE Base Station: Installation* for instructions.

---

#### Note

The longest extension cable available for chaining is five metres. Make sure that you have got a suitable length of cable before mounting the extra BTS cabinets for chaining.

---

2. Read Chapter 2 in this document, *Preparing for upgrade*, and familiarise yourself with the precautions and procedures. Remove the cover of the BTS.
3. Confirm that all the BTS cabinets in the planned chain have been mounted correctly and contain the 5W GSM/EDGE TRXs as described in your site's transmission plan.
4. Confirm that the extra sectors and TRX have been added to the BCF in the BSC database, and remain in the locked state.

5. Request a BCF lock for the site from the BSC or NMS. You can check if the site has been locked by connecting a BTS Manager laptop to the master BTS in the chain, starting BTS Manager and checking TRX PROPERTIES in the *Supervision - Equipment View* window (right-click with the mouse over a TRX in the window).
6. Power OFF the master BTS. Inform your Operations Manager before doing this and follow the procedures for powering down a BTS.

---

### Note

The site will already be “off air” if it has been locked.

---

Power OFF the master BTS by turning the switch on the power supply unit to Stand-by.

7. On the master BTS, connect the end of the chaining cable marked “Master” to the upper “EXT” connector on the interface unit. See Figure 12 for an illustration of the connection.
8. On the slave BTS, connect the “slave” end of the cable which comes coming from the master BTS to the lower “EXT” connector on the interface unit. See Figure 12 for an illustration of the connection.
9. If a second slave BTS cabinet is required (making a three BTS chain), connect the master end of the chaining cable from the upper “EXT” connector on the first slave BTS to the lower “EXT” connector on the interface unit of the second slave BTS (the third BTS in the chain). See Figure 12 for an illustration of the connection.
10. Fit a termination connector to the first, unused lower “EXT” connector in the chain. This will be in the master BTS, depending on the number of BTSs in the chain.
11. Route the cables through the appropriate slots cable entry blocks on the BTS cabinets and secure them with cable ties to the cable entry plate. Figure 8 shows the cable entry block.
12. You can now commission the BTS. Follow the instructions given in Chapter 7.2 of this document, *Commissioning the BTS chain*.

---

### Note

The newly chained BTS site should remain in the locked state until you have completed the commissioning procedures. Do not request a BCF unlock until you have commissioned the BTS chain.

---



# 7

## Commissioning for upgrade

Whenever a Nokia MetroSite Base Station installation is upgraded to GSM/EDGE or for BTS chaining it must be re-commissioned locally with Nokia BTS Manager version 3.0 or later. This includes downloading the appropriate software (CX 3.0 or later) to the master TRX from the BSC and configuring the transmission.

---

### Note

To ensure that you have access to the correct software versions for the upgrade, Nokia SiteWizard version 3.0 or later should be loaded on the laptop being used for commissioning.

---

---

### Note

A Nokia MetroSite BTS installation fitted with 5W GSM/EDGE TRXs can be commissioned for GSM transmission, EDGE transmission, or a combination of both.

---

---

### Note

CX 3.2 software or later must be loaded at the BSC before BTS commissioning for the EDGE and chaining upgrades. The software is downloaded to the TRXs during the commissioning process with Nokia BTS Manager 3.x.

---

## 7.1 Commissioning the BTS for GSM/EDGE



### Commissioning the BTS for GSM/EDGE upgrade

1. Make sure that all the units and cables are installed and connected correctly.
2. Connect the laptop PC loaded with Nokia BTS Manager 3.0 to the LMP connector on the BTS's interface unit. An LMP cable is required.
3. Switch ON the PSU at the BTS.
4. Start BTS Manager 3.0 on your laptop. Wait until Site Supervisory condition is achieved. All units must show green LEDs.
5. With BTS Manager, uncommission the BTS. Follow the procedures found in *Nokia MetroSite EDGE Base Station: Commissioning*.
6. Carry out the commissioning procedures as instructed in *Nokia MetroSite EDGE Base Station: Commissioning*.
7. When commissioning is complete, disconnect the laptop from the BTS and carry out the procedures in Chapter 8 of this document, *Completing the upgrade*.

## 7.2 Commissioning the BTS chain

The chain of Nokia MetroSite EDGE base stations will be commissioned as one BCF object, with TRX 1 in the master BTS performing the BCF traffic functions for the chain. Otherwise, the master TRX in each cabinet controls only the heating/cooling and alarm functions.



### Commissioning the BTSs for a chaining upgrade

1. Make sure that all the units and cables are installed and connected correctly.
2. Connect the laptop PC loaded with Nokia BTS Manager 3.0 to the LMP connector on the interface unit of the master BTS. An LMP cable is required.
3. Switch ON the PSUs at the master BTS and the slave BTSs.

4. Start BTS Manager 3.0 on your laptop.
5. With BTS Manager, uncommission the master BTS by selecting COMMISSIONING | WIZARD from the main menu and selecting the 'Undo Commissioning' button.

---

### Note

Before or during the commissioning of the BTS chain, CX 3.0 software must be loaded to the master BTS from the BSC. CX 3.0 software or later must be available at the BSC.

---

---

### Note

The newly chained BTS site should remain in the locked state until you have completed the commissioning procedures. Do not request a BCF unlock until you have commissioned the BTS chain.

---

6. Carry out the commissioning process with BTS Manager's Commissioning Wizard, as described in the document *Nokia MetroSite EDGE Base Station: Commissioning*. At the stage of traffic allocation, follow the instructions called *Allocating transmission capacity for chaining* in the *Traffic Manager* chapter of the document.

---

### Note

It is important that when commissioning has been completed, the new BTS are unlocked in the BSC database before the BCF is unlocked.

---

7. When commissioning is complete, disconnect the laptop from the master BTS and carry out the procedures in Chapter 8 of this document, *Completing the upgrade*.



# 8

## Completing the upgrade

---



### WARNING

**GROUNDING.** Before refitting the cabinet cover, make sure that the grounding cable has been reconnected to the BTS cabinet.

---



### Fitting the cabinet cover and completing the upgrade

1. Make sure that all the units and cables are correctly installed and connected.
2. Fit the cable cover (see Figure 13) as follows:
  - a. Fit the cable cover support onto the hook at the end of the perforated plastic panel.
  - b. Align the cable cover into the recesses on the cable cover support and slide it downwards until it locks into place.

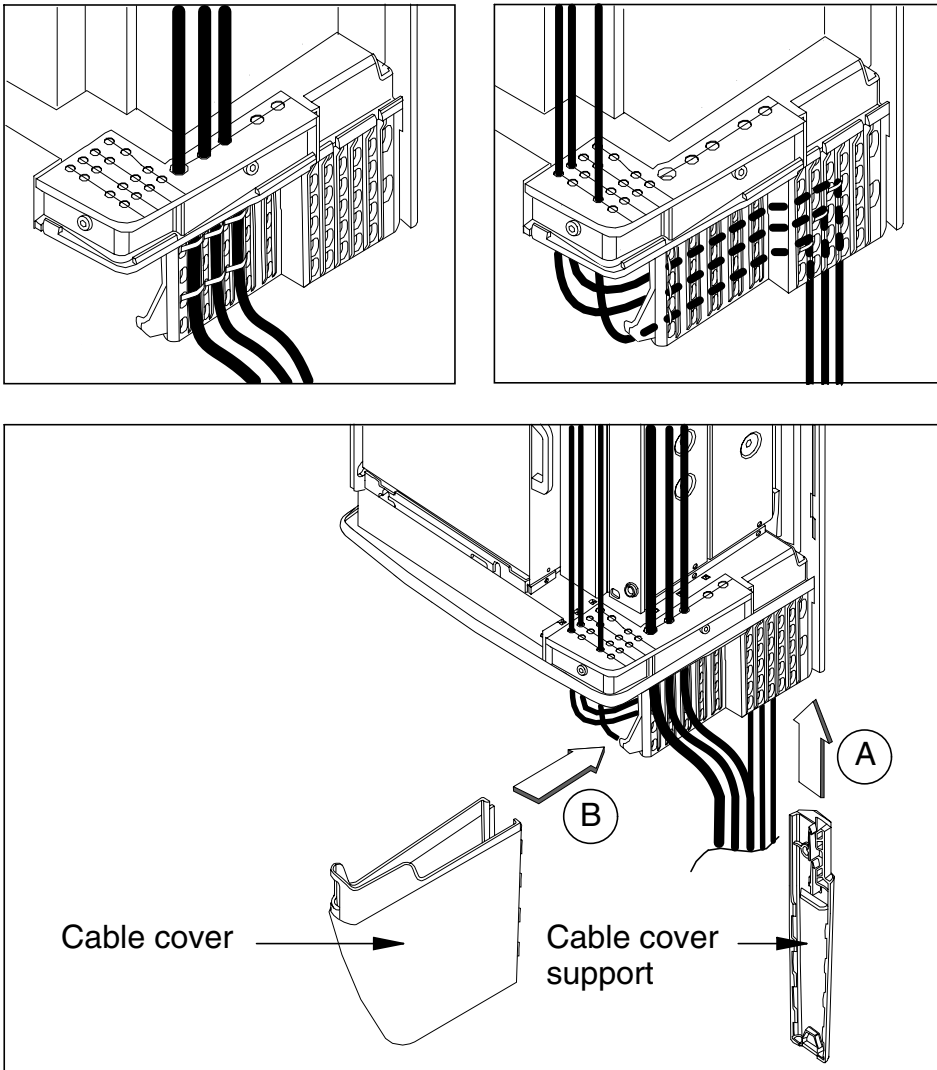


Figure 13. Routing the cables and fitting the cable cover

3. Turn ON the external power supply switch.
4. Turn ON the PSU in the BTS.

5. Refit the cabinet cover as follows (see also Figure 14):

---

### Note

If the Nokia MetroSite BTS installation was upgraded from 1W TRXs to 5W TRXs, a new cover is required (HVCU type).

---

- a. Attach the safety strap to the fixing point on the top of the cabinet.
- b. Place the cover over the cabinet and align the locking hooks on the cover to the locking rail on the chassis. Push the cover into the chassis and pull downwards to lock the hooks firmly into the rail.
- c. You can check that the cover is securely fastened by pushing on its sides.

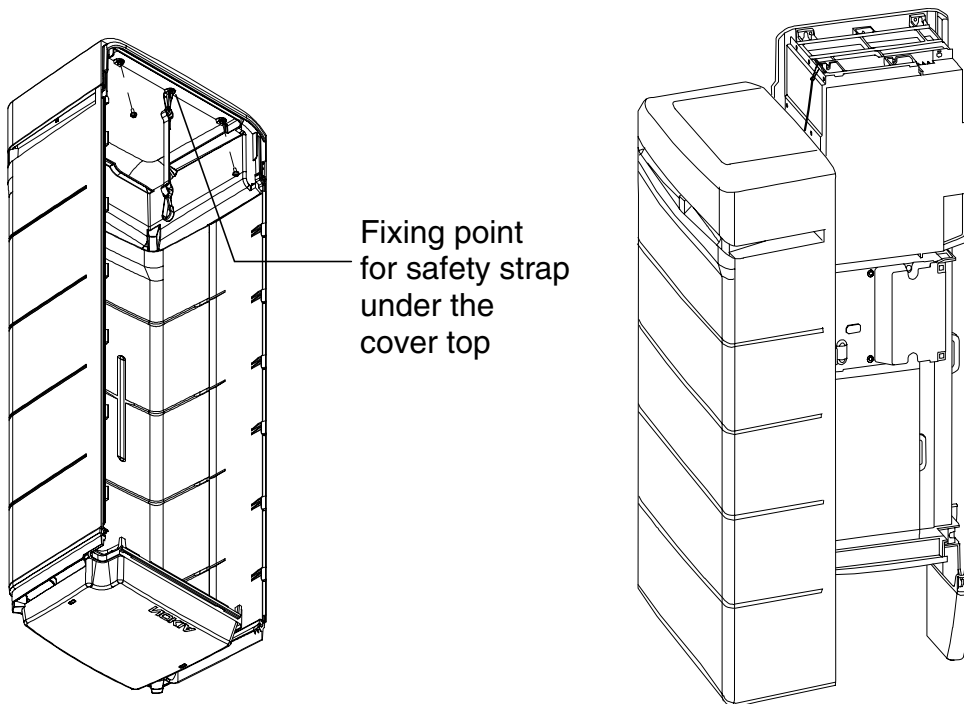


Figure 14. Nokia MetroSite EDGE BTS cover and safety strap

6. Lock the cabinet with the key.
7. Inform your Installation Manager / Site Manager that the upgrade is complete and fill in the appropriate site reports.

8. Recycle any applicable material.
- 

**Note**

In case you need to dispose of replaced units, contact Nokia Professional Services for information on recycling. An environmental data package, including disassembly instructions and a material balance document is also available via Nokia Professional Services.

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