



Nokia MetroSite EDGE Base Station

Alarm Descriptions

The information in this documentation is subject to change without notice and describes only the product defined in the introduction of this documentation. This documentation is intended for the use of Nokia's customers only for the purposes of the agreement under which the documentation is submitted, and no part of it may be reproduced or transmitted in any form or means without the prior written permission of Nokia. The documentation has been prepared to be used by professional and properly trained personnel, and the customer assumes full responsibility when using it. Nokia welcomes customer comments as part of the process of continuous development and improvement of the documentation.

The information or statements given in this documentation concerning the suitability, capacity, or performance of the mentioned hardware or software products cannot be considered binding but shall be defined in the agreement made between Nokia and the customer. However, Nokia has made all reasonable efforts to ensure that the instructions contained in the documentation are adequate and free of material errors and omissions. Nokia will, if necessary, explain issues which may not be covered by the documentation.

Nokia's liability for any errors in the documentation is limited to the documentary correction of errors. NOKIA WILL NOT BE RESPONSIBLE IN ANY EVENT FOR ERRORS IN THIS DOCUMENTATION OR FOR ANY DAMAGES, INCIDENTAL OR CONSEQUENTIAL (INCLUDING MONETARY LOSSES), that might arise from the use of this documentation or the information in it.

This documentation and the product it describes are considered protected by copyright according to the applicable laws.

NOKIA logo is a registered trademark of Nokia Corporation.

Other product names mentioned in this documentation may be trademarks of their respective companies, and they are mentioned for identification purposes only.

Copyright © Nokia Corporation 2002. All rights reserved.



C E 0523 ⓘ	Hereby, Nokia Corporation, declares that this product is in compliance with the essential requirements and other relevant provisions of Directive: 1999/5/EC. The product is marked with the CE marking and Notified Body number according to the Directive 1999/5/EC.
FCC	FCC §15.21 - Information to user - This product is used as an intentional radiated equipment and any changes or modifications on the equipment without any approval by Nokia could void the user's authority to operate the equipment. FCC §15.105 - Information to user - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: • Reorient or relocate the receiving antenna. • Increase the separation between the equipment and receiver. • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. • Consult the dealer or an experienced radio/TV technician for help.

Contents

	Contents	5
	List of tables	6
	List of figures	7
1	About this document	9
2	BTS alarm handling	11
2.1	Alarm examples	11
2.1.1	Alarms seen at the BSC or NMS	11
2.1.2	Alarms seen at the BTS	13
2.2	Troubleshooting faults	13
2.3	Fault reporting	14
2.4	Alarm reclassification	14
3	BTS alarm descriptions	17
3.1	Using an alarm description table	17
3.2	Alarm description tables	18

List of tables

Table 1.	Description of the fields in the alarm description table	17
Table 2.	7208 LOCAL BLOCK	18
Table 3.	7401 EXTERNAL ALARM 7401-7410, EXTERNAL ALARM 1-10	18
Table 4.	7600 BCF FAULTY	19
Table 5.	7601 BCF OPERATION DEGRADED	19
Table 6.	7602 BCF NOTIFICATION	20
Table 7.	7603 BTS FAULTY	21
Table 8.	7604 BTS OPERATION DEGRADED	21
Table 9.	7605 BTS NOTIFICATION	22
Table 10.	7606 TRX FAULTY	22
Table 11.	7607 TRX OPERATION DEGRADED	23
Table 12.	7609 TRE FAULTY	23
Table 13.	7615 RTS IN TEST USE	24
Table 14.	7616 OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED	24
Table 15.	7617 SEVERAL CALLS DROPPED DUE PROBLEM WITH TRANSCODER	24
Table 16.	7620 INCOMING POWER LOST	25
Table 17.	7621 INTOLERABLE CONDITIONS ON SITE	25
Table 18.	7622 CABINET OPEN	26
Table 19.	7801 MMI CONNECTED TO BASE STATION	26

List of figures

- Figure 1. Example 1, active alarms as seen at the BSC 12
- Figure 2. Example 2, active alarm as seen at the BSC 12
- Figure 3. Alarms view on Nokia MetroSite BTS Manager desktop 13
- Figure 4. Faulty and degraded object alarm reclassification 15

1

About this document

This document provides information on the Nokia MetroSite EDGE Base Station alarms. The alarms are used as a basis for internal fault recovery and fault reporting to the BSC, NMS/2000 and/or the Nokia MetroSite BTS Manager software.

This document also gives instructions for the operator on how to correct the faults and maintain traffic in the air interface and/or to protect the units in the base station.

Note

This document does not include transmission unit alarms. Please refer to appropriate transmission unit documentation.

2

BTS alarm handling

This chapter describes Nokia MetroSite EDGE Base Station alarm handling and alarm reclassification. The fields in the alarm description table are also described.

2.1 Alarm examples

Alarms can be detected at the BSC, the NMS, or at the BTS. Instructions on how to deal with the alarms is found in the alarm descriptions tables in Chapter 3 of this document.

For instructions on how to replace units or carry out other maintenance tasks, refer to *Nokia MetroSite EDGE Base Station: Maintenance* and *Nokia MetroSite Base Station: Field Upgrade*.

2.1.1 Alarms seen at the BSC or NMS

Nokia MetroSite EDGE Base Station alarms issued at the BSC or NMS/2000 have a four-digit alarm number and an alarm name, together with the optional fault reason (refer to Figures 1 and 2). For information on the other fields shown in Figures 1 and 2, refer to BSC documentation.

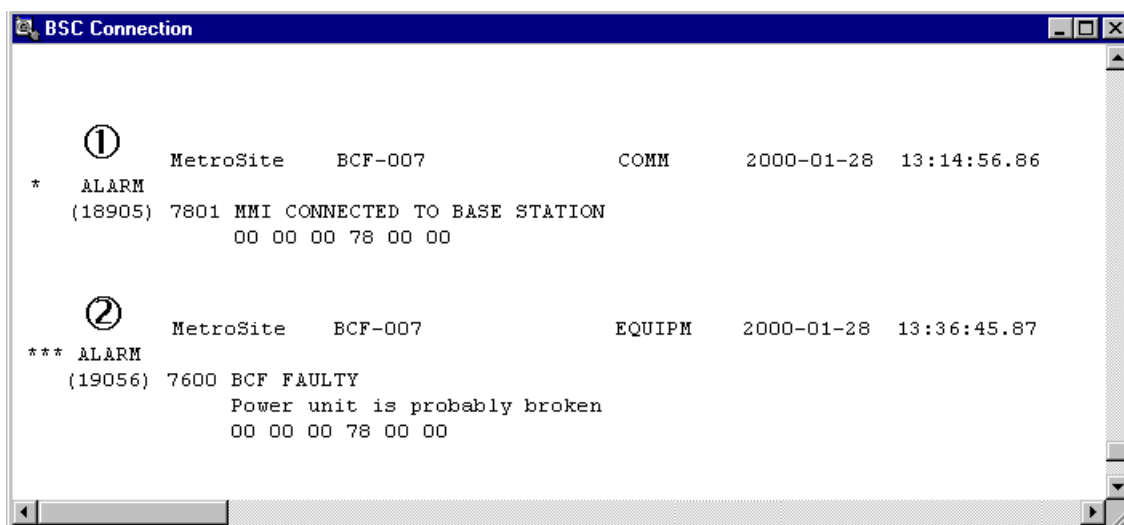


Figure 1. Example 1, active alarms as seen at the BSC

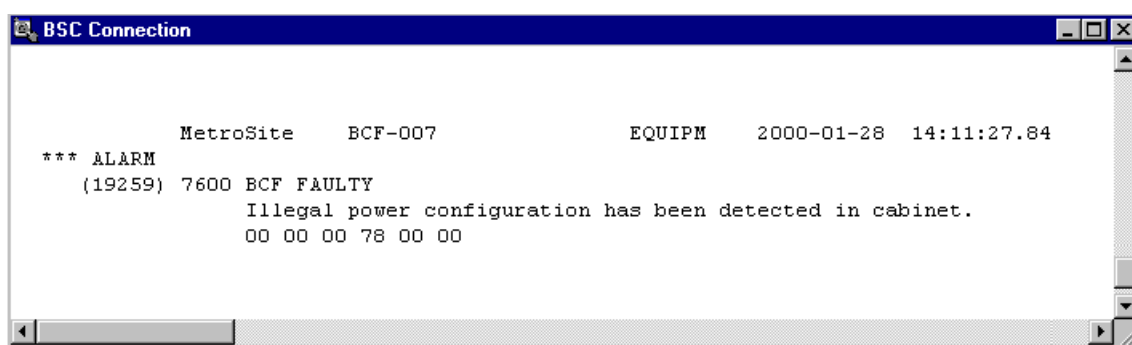


Figure 2. Example 2, active alarm as seen at the BSC

The text below the alarm name describes the fault that has caused the alarm. For example, in alarm [2] in Figure 1, the power supply unit is probably broken.

Note

One alarm can have many different fault reasons.

In alarm [2] in Figure 1 the fault is different but the alarm number is the same as in Figure 2. The effect on the operation of a base station is the same, which is why they have the same alarm number and name.

2.1.2 Alarms seen at the BTS

Figure 3 shows how alarms (number, name and fault reason) are seen in the *Alarms* view on the desktop of the Nokia MetroSite BTS Manager software.

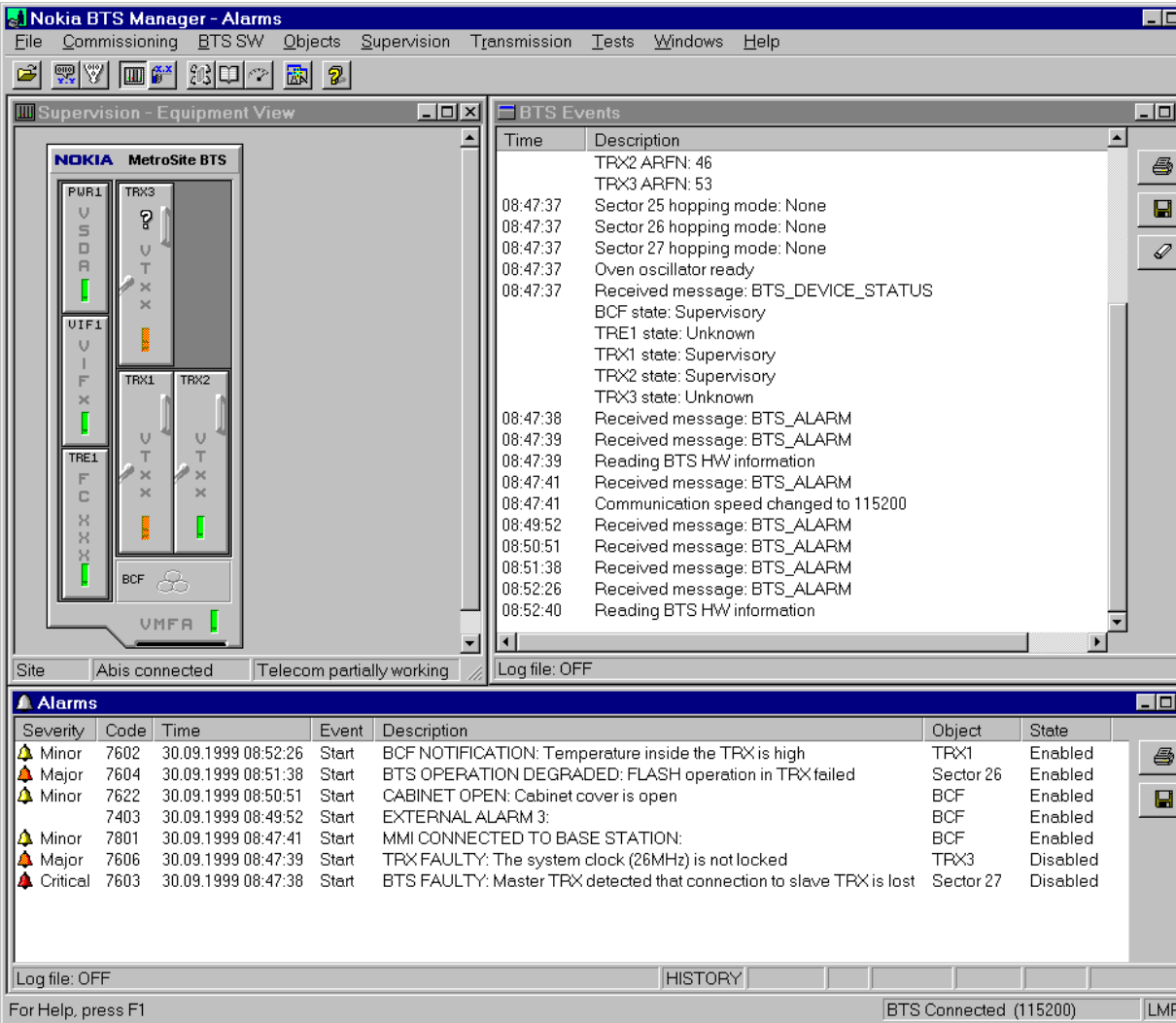


Figure 3. Alarms view on Nokia MetroSite BTS Manager desktop

2.2 Troubleshooting faults

BTS alarms are described in detail in the alarm description tables found in Chapter 3 of this document. Table 1 describes how to use the alarm description tables.



Troubleshooting faults using alarm description tables

1. Check the alarm number and alarm name and find its alarm description table in Chapter 3 in this document.
2. Find the fault reason in the *Fault reason* field in the alarm description table.
3. Follow the instructions given in the *Instruction* field. See also the alarm cancelling information in the *Cancelling* field.
4. If the fault reason cannot be found in the *Fault reason* field, follow the instructions given for *Other faults*.

Note

Instructions given for *Other faults* apply to several different fault reasons.

2.3 Fault reporting

Where possible, correct all damage, failures, and faults and report them to Nokia using the Failure Report Form provided by Nokia Customer Services.

Note

You can save the alarm information to a log file on your PC with Nokia MetroSite BTS Manager.

2.4 Alarm reclassification

In fault situations, Nokia MetroSite EDGE Base Station runs an automatic reclassification procedure for major (**) and critical (***) alarms before it sends an alarm to the BSC. When an object becomes faulty, only one critical (***) alarm from the object can be active at a time.

In reclassification, the alarm handling detects which logical base station object is affected by a unit level fault. After reclassification, an object level alarm is issued according to a certain hierarchy, as described in Figure 4.

Alarm Output in Figure 4 shows the number and the name of the alarm(s) issued at the BSC in such a fault situation. Also, the object that is the alarm origin is given in brackets.

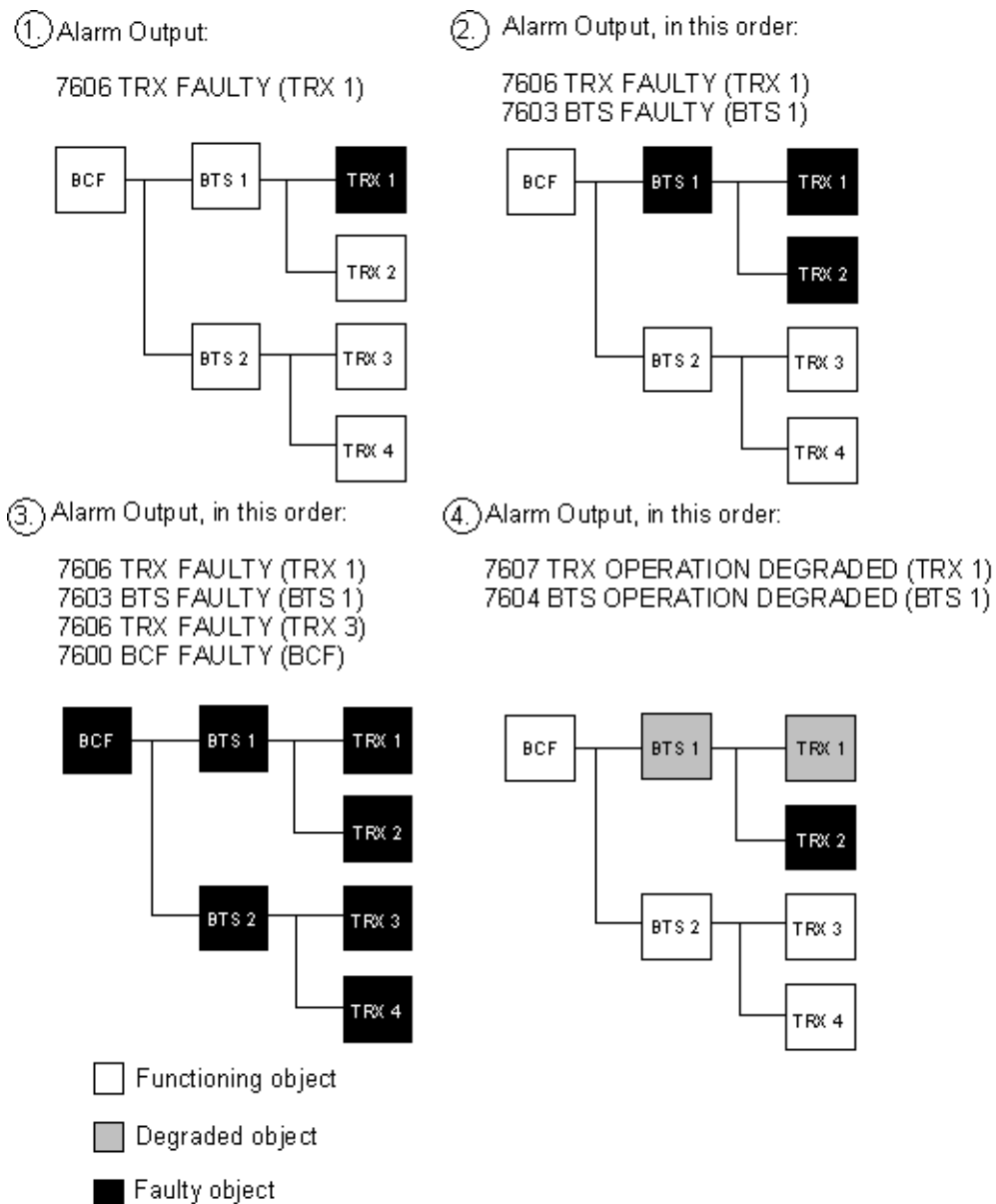


Figure 4. Faulty and degraded object alarm reclassification

Fault situation [1]:

1. TRX 1 becomes disconnected and ceases to operate. 7606 TRX FAULTY alarm is issued.

Fault situation [2]:

1. TRX 1 becomes disconnected and ceases to operate. 7606 TRX FAULTY alarm is issued.
2. TRX 2 becomes disconnected, which causes BTS 1 cease to operate. Alarm reclassification discards the new TRX alarm and a BTS alarm, 7603 BTS FAULTY, is issued.

Fault situation [3]:

1. TRX 1 becomes disconnected and ceases to operate. 7606 TRX FAULTY alarm is issued.
2. TRX 2 becomes disconnected, which causes BTS 1 cease to operate. Alarm reclassification discards the new TRX alarm and a BTS alarm, 7603 BTS FAULTY, is issued.
3. TRX 3 becomes disconnected, and another 7606 TRX FAULTY alarm is issued.
4. TRX 4 becomes disconnected, which causes BTS 2 cease to operate. Now both sectors in the BCF are not operating. Alarm reclassification discards both the new TRX alarm and the new BTS alarm, and a BCF alarm, 7600 BCF FAULTY, is issued.

Fault situation [4]:

1. TRX 1 becomes partially faulty but calls are getting through. 7607 TRX OPERATION DEGRADED alarm is issued.
2. TRX 2 becomes disconnected and ceases to operate. Alarm reclassification discards the new TRX alarm and a BTS alarm, 7604 BTS OPERATION DEGRADED, is issued.

3

BTS alarm descriptions

This chapter defines the alarms collected from the objects in the Nokia MetroSite EDGE Base Station.

3.1 Using an alarm description table

Table 1 describes the information that you will find in the alarm description tables for the Nokia MetroSite EDGE Base Station. A full list of the alarm tables is given in Chapter 3.2 of this document.

Table 1. Description of the fields in the alarm description table

1234 ALARM NAME			
Severity:	Object affected:	Object state:	Unit:
Shows the alarm severity as displayed at the BSC or NMS/2000. The options are: * = minor ** = major *** = critical - User definition	The logical object affected by the fault. The options are: BCF, BTS, TRX, TRE, RTS	The state of the affected object at the time the alarm is issued. The options are: - Enabled - Disabled	The alarm origin(s). The unit is given a four-letter acronym, e.g.: WTxx, HVTx, VXxx, VIFA
Fault reason:	Instruction:		Alarm cancelling:
This field describes the cause of the alarm, for example: Power unit is probably broken.	This field gives instructions for the operator (at the NMS/2000 or at the BSC) how to correct the fault reason causing the alarm: 1. If the power supply unit LED is green, check the TRXs and replace the faulty TRX. The TRX connectors are probably broken. 2. If the power supply unit LED is red, replace the power supply unit.		This field describes how the alarm is cancelled. The options are: - Automatic - Manual

3.2 Alarm description tables

Table 2. 7208 LOCAL BLOCK

7208 LOCAL BLOCK			
Severity:	Object affected:	Object state:	Unit:
*	BCF, or BTS, or TRX	Disabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
No fault reason text with the alarm. Nokia MetroSite BTS object is blocked with Nokia BTS Manager.	1. No actions required.		Automatic.

Note

The alarms from the blocked object are cancelled.

Table 3. 7401 EXTERNAL ALARM 7401-7410, EXTERNAL ALARM 1-10

7401 EXTERNAL ALARM 7401 - 7410, EXTERNAL ALARM 1 - 10			
Severity:	Object affected:	Object state:	Unit:
User definition	BCF	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
No fault reason text with the alarm. This is an external user-definable alarm.	1. Check the settings at the BSC. 2. Check the cable connected to the VIFA unit in the base station. 3. Check the unit connected to the external alarm line. 4. If all of the above are OK, replace the VIFA plug-in unit.		Automatic.

Table 4. 7600 BCF FAULTY

7600 BCF FAULTY			
Severity:	Object affected:	Object state:	Unit:
***	BCF	Disabled	WTxx, HVTx, HVSx, VIFA
Fault reason:	Instruction:		Alarm cancelling:
Power unit is probably broken.	1. If the power supply unit LED is green, check the TRXs and replace the faulty TRX. TRX connectors are probably broken. 2. If the power supply unit LED is red, replace the power supply unit.		Automatic.
Oven oscillator is broken.	1. Replace the VIFA unit.		Automatic.
Temperature inside the TRX is dangerously high.	1. Check whether the following alarm is active: 7621 INTOLERABLE CONDITIONS ON SITE and follow the instructions given for the alarm. 2. Even if alarm 7621 is not active, and there is only one TRX in the cabinet, follow the instructions given for alarm 7621. 3. If alarm 7621 is not active and the cabinet has more than one TRX, replace the master TRX.		Automatic.
Other faults.	1. Check whether either of the following alarms is active: 7606 TRX FAULTY 7603 BTS FAULTY and follow the instructions given for the active alarm(s). If necessary, replace all TRXs in the cabinet.		Automatic.

Table 5. 7601 BCF OPERATION DEGRADED

7601 BCF OPERATION DEGRADED			
Severity:	Object affected:	Object state:	Unit:
**	BCF	Enabled	WTxx, HVTx

Table 5. 7601 BCF OPERATION DEGRADED (Continued)

7601 BCF OPERATION DEGRADED		
Fault reason:	Instruction:	Alarm cancelling:
Cabinet I ² C bus is jammed.	1. Switch the site power Off and On. 2. Check the fan unit, the power supply unit and the TRXs. If necessary, replace the faulty unit(s). 3. If the fault reappears, replace the cabinet. The units inside the cabinet can be reused in the new cabinet.	Automatic.
Other faults.	1. Check whether one or several of the following alarms are active: 7606 TRX FAULTY 7603 BTS FAULTY 7607 TRX OPERATION DEGRADED 7604 BTS OPERATION DEGRADED and follow the instructions given for the active alarm(s).	Automatic.

Table 6. 7602 BCF NOTIFICATION

7602 BCF NOTIFICATION			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	WTxx, HVTx, HVMF
Fault reason:	Instruction:		Alarm cancelling:

Table 6. 7602 BCF NOTIFICATION (Continued)

7602 BCF NOTIFICATION		
Temperature inside the TRX is high.	1. Check whether the following alarm is active for fan unit: 7605 BTS NOTIFICATION and follow the instructions given for the alarm. 2. Even if there are no active alarms for the fan unit, check that no foreign objects obstruct the airflow. 3. If alarm 7605 is not active, ensure that the ambient temperature of the base station is within acceptable limits.	Automatic.
Temperature inside the TRX is low.	1. Ensure that the ambient temperature is within acceptable limits. Check also the fan unit.	Automatic.
Fan unit is broken.	1. Check whether the fan unit is installed. 2. When there is a fan unit installed, check if something has jammed the fan unit and remove the jamming object. Otherwise replace the fan unit.	Automatic.

Table 7. 7603 BTS FAULTY

7603 BTS FAULTY			
Severity:	Object affected:	Object state:	Unit:
***	BTS	Disabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Other faults.	1. Check whether the following alarm is active: 7606 TRX FAULTY and follow the instructions given for the alarm. If necessary, replace all TRXs in the faulty sector.		Automatic.

Table 8. 7604 BTS OPERATION DEGRADED

7604 BTS OPERATION DEGRADED			
Severity:	Object affected:	Object state:	Unit:

Table 8. 7604 BTS OPERATION DEGRADED (Continued)

7604 BTS OPERATION DEGRADED			
**	BTS	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Other faults.	1. Check whether either of the following alarms is active: 7606 TRX FAULTY 7607 TRX OPERATION DEGRADED and follow the instructions given for the active alarm(s).		Automatic.

Table 9. 7605 BTS NOTIFICATION

7605 BTS NOTIFICATION			
Severity:	Object affected:	Object state:	Unit:
*	BTS	Enabled	HVMF
Fault reason:	Instruction:		Alarm cancelling:
Fan unit operation degraded.	1. If something has jammed the fan unit, remove the jamming object. Otherwise replace the fan unit.		Automatic.

Table 10. 7606 TRX FAULTY

7606 TRX FAULTY			
Severity:	Object affected:	Object state:	Unit:
**	TRX	Disabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Failure detected during TRX configuring.	1. The TRX has become disconnected. Reconnect the cabling at the TRX.		Automatic.
Antenna connection faulty.	1. Check the antenna and cabling. If the antenna and cabling are faulty, correct the problem and run TRX test to cancel the alarm.		Manual/Automatic.
TRX test result antenna connection faulty.	1. Check the antenna and cabling. If the antenna and cabling are faulty, correct the problem and run TRX test again to cancel the alarm.		Manual/Automatic.

Note

In case of alarm 7606, if a BCCH TRX is affected, the BSC performs a BCCH reconfiguration if possible.

Table 11. 7607 TRX OPERATION DEGRADED

7607 TRX OPERATION DEGRADED			
Severity:	Object affected:	Object state:	Unit:
**	TRX	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Other faults.	1. Replace the faulty TRX.		Automatic.

Table 12. 7609 TRE FAULTY

7609 TRE FAULTY			
Severity:	Object affected:	Object state:	Unit:
***	BCF	Disabled	VXxx
Fault reason:	Instruction:		Alarm cancelling:
Master TRX detected that connection to transmission unit is lost.	1. If the alarm is seen at the BSC, the transmission unit is not working properly. However, if the base station otherwise operates properly, there is no need for immediate repair. The transmission alarms are not reported to the BSC. 2. If the alarm is seen on Nokia BTS Manager only, the transmission unit is not operating. Reset the BCF. 3. If the alarm reappears after BCF reset, switch the cabinet power off and on. 4. If the alarm reappears after the recovery actions above, replace the faulty transmission plug-in unit.		Manual/Automatic.

Table 13. 7615 RTS IN TEST USE

7615 RTS IN TEST USE			
Severity:	Object affected:	Object state:	Unit:
*	RTS	Disabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
No fault reason text with the alarm. Internal O&M SW is testing the timeslots during TRX test.	1. No actions required.		Automatic.

Table 14. 7616 OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED

7616 OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	VIFA
Fault reason:	Instruction:		Alarm cancelling:
Oven oscillator adjustment function interrupted.	1. Check the Abis connection. 2. If the Abis connection is OK, replace the faulty VIFA unit.		Automatic.

Table 15. 7617 SEVERAL CALLS DROPPED DUE PROBLEM WITH TRANSCODER

7617 SEVERAL CALLS DROPPED DUE PROBLEM WITH TRANSCODER			
Severity:	Object affected:	Object state:	Unit:
**	TRX	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Other faults. There is an error with the connection between the base station and the transcoder.	1. Check the transmission path between the base station and the transcoder.		Automatic/Manual.

Table 16. 7620 INCOMING POWER LOST

7620 INCOMING POWER LOST			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	HVSx
Fault reason:	Instruction:		Alarm cancelling:
No fault reason text with the alarm. Base station power supply unit has lost its main power.	1. Check the mains supply. 2. If the mains supply is OK, replace the power supply unit.		Automatic.

Note

When alarm 7620 is active, it will not be sent to Nokia BTS Manager. However, alarm cancelling can be seen on Nokia BTS Manager.

Note

In case of alarm 7620, if the power loss is very short and the power is on again within 1500 ms, the alarm is cancelled automatically. No actions required.

Table 17. 7621 INTOLERABLE CONDITIONS ON SITE

7621 INTOLERABLE CONDITIONS ON SITE			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
Temperature inside the TRX is dangerously high.	1. Check that the fan unit is operating. 2. If the fan unit is OK, ensure that the environment of the base station site meets the conditions specified for Nokia MetroSite EDGE Base Station.		Automatic.

Table 18. 7622 CABINET OPEN

7622 CABINET OPEN			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	HVCU, WCUA
Fault reason:	Instruction:		Alarm cancelling:
Cabinet cover is open.	1. If the cover is attached, ensure it is secured properly. If there is no cover, attach it during normal service operations.		Automatic.

Table 19. 7801 MMI CONNECTED TO BASE STATION

7801 MMI CONNECTED TO BASE STATION			
Severity:	Object affected:	Object state:	Unit:
*	BCF	Enabled	WTxx, HVTx
Fault reason:	Instruction:		Alarm cancelling:
No fault reason text with the alarm. Nokia BTS Manager is connected to Nokia MetroSite BTS.	1. No actions required.		Automatic.