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Trouble Management of MetroSite EDGE BTS

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Contents

1 Changes in Trouble Management of MetroSite EDGE BTS

This section describes the changes between releases in the document *Trouble Management of Nokia Siemens Networks MetroSite EDGE BTS*.

Changes between Metrosite EDGE BTS Release CXM6 CD1 and CXM7

No content changes were made in this document between CXM6 CD1 and CXM7.

Changes between Metrosite EDGE BTS Release CXM6 and CXM6 CD1

A minor note has been added to the section *Warnings and cautions for trouble management* in the document.

Changes between MetroSite EDGE BTS Release CXM5 and CXM6

The document *Trouble Management of Nokia Siemens Networks MetroSite EDGE BTS* is a new document in CMX6. It is based on the *Alarm Descriptions* document of the CMX5 release. In addition to the alarm information, the following new chapters have been included in the document:

- Trouble management of ITN, LMU and other transmission alarms
- Troubleshooting MetroSite EDGE BTS
- Troubleshooting BTS Transmission Hub
- Troubleshooting software licensing
- Completing troubleshooting

The MetroSite EDGE BTS alarms have been updated to CXM6 level.

Changes in alarms between MetroSite EDGE BTS Release CXM5 and releases CXM5 CD1, CXM5 CD2 and CXM5 CD3

No changes in alarms were made in the CXM 5 CD1, CXM 5 CD2 and CXM 5 CD3 releases.

2 Statutory statements

2.1 CE Marking

Standard	Description
CE 0168 !	Hereby, Nokia Siemens Networks, declares that this MetroSite EDGE Base Station 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.

2.2 FCC Statement

Standard	Description
FCC Statement	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. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

3 Warnings and cautions for trouble management

Caution

Avoid setting the alarm monitoring delay to a very small value when monitoring a network element remotely. This places a strain on the Q1 bus resources and causes delays for other activities.

Caution

Setting a Flexbus loop cuts the connection to the outdoor unit until the loop is cancelled or it expires. This includes all data and management information. The interface loopback in FlexiHopper stays active until the loopback timeout expires.

Note that if the OMU signaling link between the BSC and BTS is blocked, no alarms will be reported by the BTS. De-block the link to enable the sending of the alarms.

For a complete list of warnings and cautions for MetroSite EDGE BTS, please refer to the document *Legal and Safety Statements for MetroSite EDGE BTS* in the latest Product Documentation set.

4 Alarm descriptions

The alarms and warnings are classified by the section, and further by the location giving the alarm or warning. The alarm descriptions give the following information:

- *Title* row, shows the fault code and the alarm name.
- *Severity* shows the default severity class of the alarm
- *Fault reason* indicates the possible cause of the alarm.
- *Description*
  - *Location* shows the alarm source location.
  - *Consequence* shows whether an indication signal is sent upstream or downstream. Upstream is the direction from FC STM to a remote node A, for defects in the signal from remote node A to FC STM. Downstream is the direction from FC STM to a remote node B, for the signal from FC STM to remote node B, if affected by the defect.

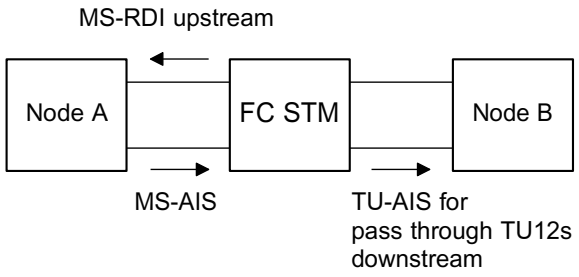


Figure 1. Upstream/downstream example based on MS-AIS

- *Instructions* gives instructions on how to remedy the fault.
- *Cancelling* gives instructions on how to cancel the alarm.

5 Trouble management of MetroSite EDGE BTS alarms

5.1 MetroSite EDGE Base Station alarm examples

MetroSite EDGE Base Station alarms issued at the BSC or NMS/NetAct have a four-digit alarm number and an alarm name, and an optional fault reason (see the figures below). For other fields in the below figures, please refer to BSC documentation.

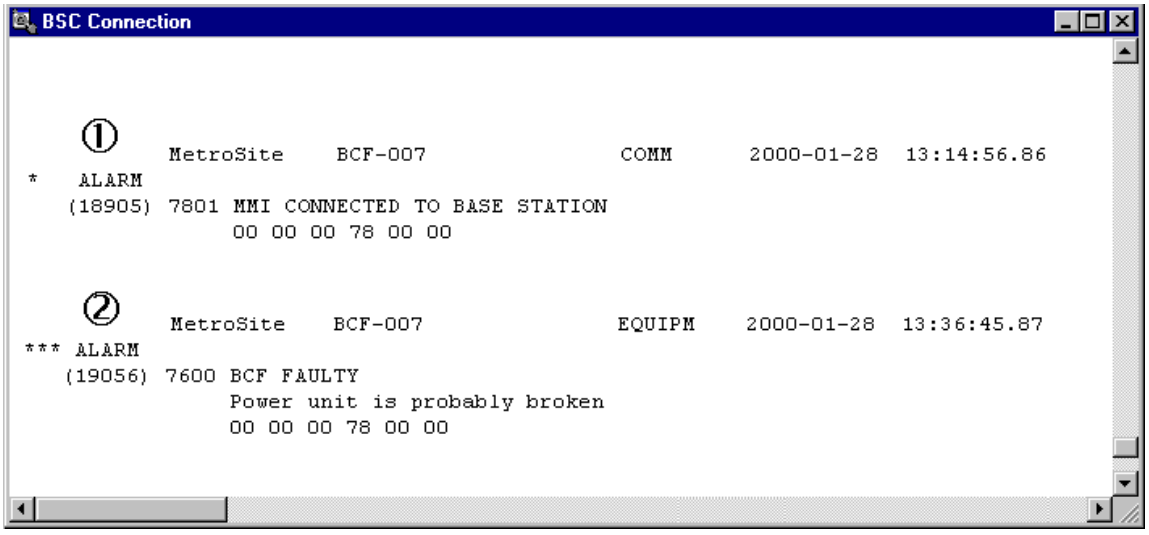


Figure 2. Examples of active alarms as seen at the BSC

The text under the alarm name gives the fault reason that has caused the alarm, for example see 2. in the figure above: `Power unit is probably broken`.

Note

One alarm can have many different fault reasons:

In the above figure, the fault reason in 2. is different although the alarm number is the same as in the figure below. Different faults may have the same effect on the operation of a base station object, therefore they have the same alarm number and name. The fault reason specifies the fault and helps in troubleshooting.

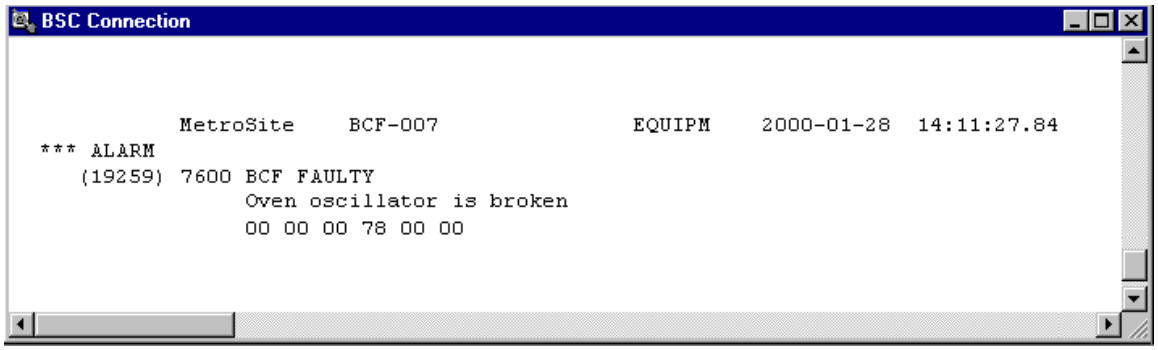


Figure 3. Example of an active alarm as seen at the BSC

5.2 Identifying faulty units

Faulty units can be identified on the BTS Manager desktop. The BTS Manager shows an Alarms window with an Object column giving the object (for example BCF), that the alarm refers to, and also specifying the unit, rack, shelf and slot. The Severity column in the Alarms window indicates the level of the alarm (for example critical, minor). The Equipment view in the Supervision window shows the location of the units in the cabinet.

Unit location numbers are used in alarm information to locate a failed unit. The main principle for numbering locations is from top to bottom and from the left to the right. Location numbers are defined with the following parameters:

RACK	specifies the rack of the cabinet
SHELF	specifies the shelf in the cabinet
SLOT	specifies the location on the shelf

The figure below shows how alarms (number, name and fault reason) are seen in the Alarms window on BTS Manager desktop.

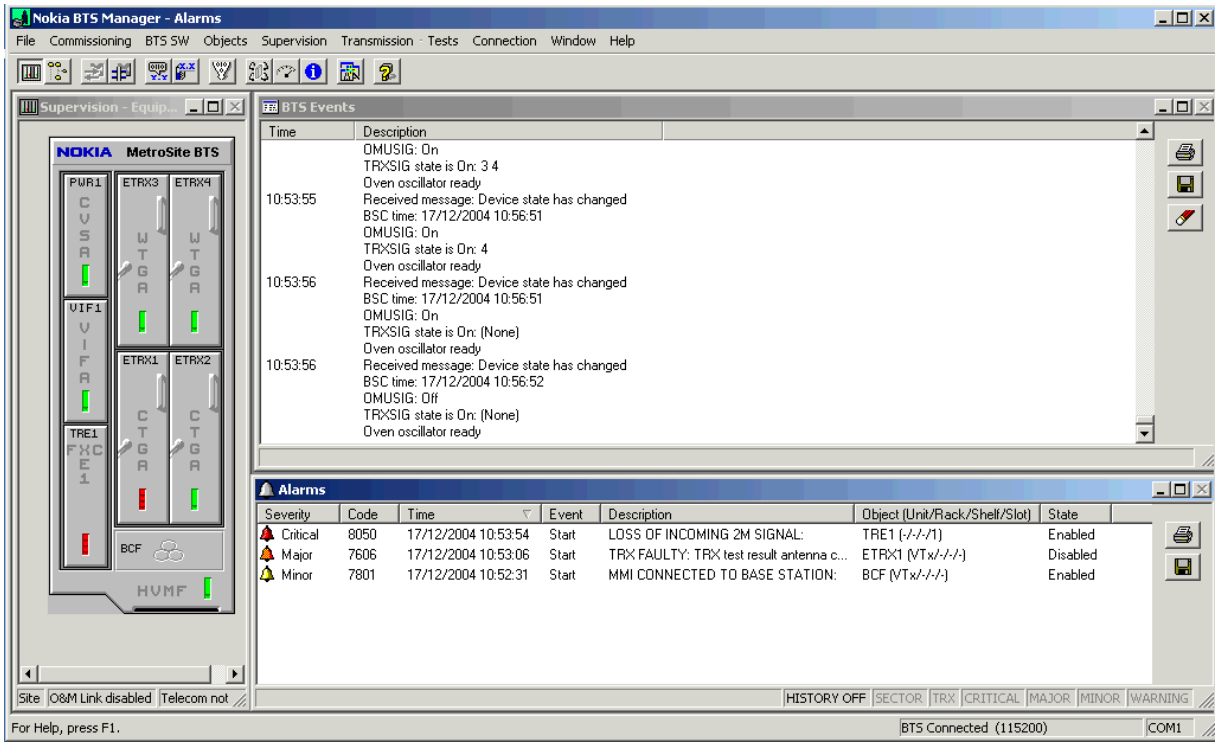


Figure 4. BTS Manager desktop showing the alarms in the Alarms window

5.3 Troubleshooting with the help of alarm tables

Purpose

The fault reason can be used for troubleshooting. The faults and instructions on how to correct the faults are presented in table format (see example of alarm table below):

Table 1. Description of the fields in the alarm table

1234 ALARM NAME			
Severity:	**Object affected:**	**Object state:**	**Unit:**

Table 1. Description of the fields in the alarm table (cont.)

1234 ALARM NAME			
Severity:	**Object affected:**	**Object state:**	**Unit:**
Shows the alarm severity as displayed at the BSC or NMS/NetAct. The options are: • * = minor • ** = major • *** = critical • User definition	The logical object affected by the fault.	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 an acronym.
Fault reason:	**Instruction:**		**Alarm cancelling:**
This field describes the cause of the alarm.	This field gives instructions for the operator (at the NMS/NetAct or at the BSC) how to correct the fault reason causing the alarm.		This field describes how the alarm is cancelled. The options are: • Automatic • Manual

Note

When baseband hopping is used, alarms do not cancel automatically when a fault is corrected. Sector reset from BTS Manager or BTS lock/unlock from the BSC is required to clear the active alarms.

Note

If the fault reason cannot be found in the *Fault reason* field, the instructions given for *Other faults* apply for the current fault.

Note

For instructions on how to replace units, refer to the latest *MetroSite EDGE BTS Product Documentation* set.

Steps

1. **Check the alarm number and alarm name and refer to *Alarms list for MetroSite EDGE BTS* to find the correct alarm description table.**

2. **Find the fault reason in the *Fault reason* field in the alarm description table.**

   See 2. in Figure *'Examples of active alarms as seen at the BSC'*, or the Alarms window in Figure *'BTS Manager desktop showing the alarms in the Alarms window'*.

3. **Follow the instructions in the proposed order given in the *Instruction* field.**

   See also 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*.**

5. **If there is no fault reason text with the alarm (see 1. in Figure *'Examples of active alarms as seen at the BSC'*), refer to the correct alarm description table and follow the possible instructions given in the *Instruction* field.**

5.4 MetroSite EDGE Base Station alarm reclassification

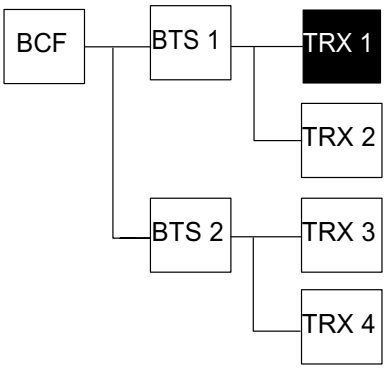
In fault situations, MetroSite EDGE Base Station runs an automatic reclassification procedure for major (**) and critical (***) alarms before it sends an alarm to the BSC. When an object becomes faulty, only one critical (***) alarm from the object can be active at a time.

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 the figure below.

Alarm Output in the figure below 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.

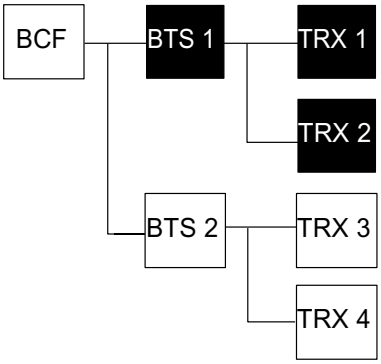
1 Alarm Output:

7606 TRX FAULTY (TRX 1)



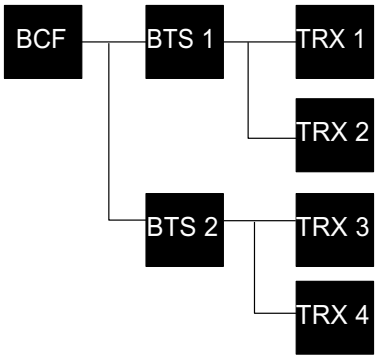
2 Alarm Output, in this order:

7606 TRX FAULTY (TRX 1)
7603 BTS FAULTY (BTS 1)



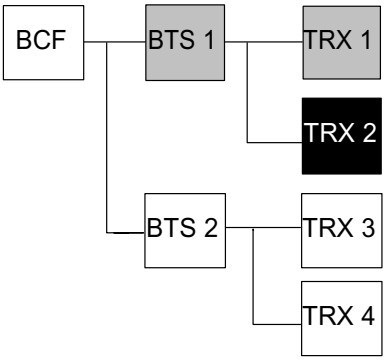
3 Alarm Output, in this order:

7606 TRX FAULTY (TRX 1)
7603 BTS FAULTY (BTS 1)
7606 TRX FAULTY (TRX 3)
7600 BCF FAULTY (BCF)



4 Alarm Output, in this order:

7607 TRX OPERATION DEGRADED (TRX 1)
7604 BTS OPERATION DEGRADED (BTS 1)



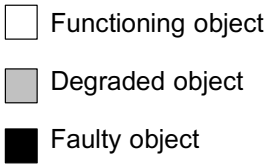


Figure 5. Faulty and degraded object alarm reclassification

Fault situation 1:

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

Fault situation 2:

1. TRX 1 becomes faulty and ceases to operate. 7606 TRX FAULTY alarm is issued.
2. TRX 2 becomes faulty, 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 faulty and ceases to operate. 7606 TRX FAULTY alarm is issued.
2. TRX 2 becomes faulty, 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 faulty, and another 7606 TRX FAULTY alarm is issued.
4. TRX 4 becomes faulty, 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 faulty and ceases to operate. Alarm reclassification discards the new TRX alarm and a BTS alarm, 7604 BTS OPERATION DEGRADED, is issued.

5.5 Alarms list for MetroSite EDGE BTS

The MetroSite EDGE BTS alarms are:

Alarm 7208 / LOCAL BLOCK

Alarm 7401-7410 / EXTERNAL ALARM

Alarm 7600 / BCF FAULTY

Alarm 7601 / BCF OPERATION DEGRADED

Alarm 7602 / BCF NOTIFICATION

Alarm 7603 / BTS FAULTY

Alarm 7604 / BTS OPERATION DEGRADED

Alarm 7605 / BTS NOTIFICATION

Alarm 7606 / TRX FAULTY

Alarm 7607 / TRX OPERATION DEGRADED

Alarm 7609 / TRE FAULTY

Alarm 7615 / RTS IN TEST USE

Alarm 7616 / OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED

Alarm 7617 / SEVERAL CALLS DROPPED DUE TO PROBLEM WITH TRANSCODER

Alarm 7620 / INCOMING POWER LOST

Alarm 7621 / INTOLERABLE CONDITIONS ON SITE

Alarm 7622 / CABINET OPEN

Alarm 7801 / MMI CONNECTED TO BASE STATION

5.6 Alarms for MetroSite EDGE BTS

5.6.1 7208 LOCAL BLOCK

Table 2. 7208 LOCAL BLOCK

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

Note

In alarm 7208 the alarms from the blocked object are cancelled.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.2 7401-7410 EXTERNAL ALARM

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	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**

Table 3. 7401 EXTERNAL ALARM 7401 - 7410, EXTERNAL ALARM 1 - 10 (cont.)

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

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.3 7600 BCF FAULTY

Table 4. 7600 BCF FAULTY

7600 BCF FAULTY			
Severity:	**Object affected:**	**Object state:**	**Unit:**
***	BCF	Disabled	VTxx, HVxx, WTxx, CTxx, VSxx, HVSx, CVSx, VIFA
Fault reason:	**Instruction:**		**Alarm cancelling:**
Base station synchronisation failed.	1. Check the synchronisation cabling. 2. If the cabling is OK, replace the master TRX (TRX-1). 3. Reset the BCF.		Automatic.
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.

Table 4. 7600 BCF FAULTY (cont.)

7600 BCF FAULTY		
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. Note: An alarm is activated when the TRX unit internal temperature exceeds +85°C.	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).	Automatic.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.4 7601 BCF OPERATION DEGRADED

Table 5. 7601 BCF OPERATION DEGRADED

7601 BCF OPERATION DEGRADED			
Severity:	**Object affected:**	**Object state:**	**Unit:**
**	BCF	Enabled	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**
Cabinet I^2C 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.
Difference between PCM and base station frequency reference.	1. Check the cabling. 2. If the cabling is OK, replace the master TRX.		Automatic.

Table 5. 7601 BCF OPERATION DEGRADED (cont.)

7601 BCF OPERATION DEGRADED		
Incompatible unit presence has been detected in the BTS.	1. Replace the high power or EDGE TRX(s) with normal type TRX(s) and reset the BCF. 2. Or, replace the normal type FAN and power supply with high power or EDGE units. Now EDGE and high power TRXs are supported.	Manual (TRX lock/unlock).
Rx levels differ too much between main and diversity antennas.	1. Check the RSSI measurements with BTS Manager. Note: There is a hysteresis of 2 dB in the cancellation of the alarm. The alarm is cancelled when the RSSI measurement result is less than RXDL -2 dB. 2. Check and measure the antenna lines. 3. Check the BTS RF cables and connections. 4. Check that the RXDL parameter at the BSC is set to a reasonable value, taking into account the site conditions in order to prevent unnecessary alarms. 5. Replace the TRX unit.	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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.5 7602 BCF NOTIFICATION

Table 6. 7602 BCF NOTIFICATION

7602 BCF NOTIFICATION			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BCF	Enabled	VTxx, HVxx, WTxx, CTxx, VMFA, HVMF
Fault reason:	**Instruction:**		**Alarm cancelling:**

Table 6. 7602 BCF NOTIFICATION (cont.)

7602 BCF NOTIFICATION		
BSS synchronisation failed.	1. Check the clock cabling between the external clock source and the BCF.	Automatic.
External synchronisation signals disabled.	1. Check the clock cabling between the LMU and the BCF. 2. Check that the GPS signal cable is connected to the LMU.	Automatic.
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. Note: An alarm is activated when the TRX unit internal temperature exceeds +80°C.	Automatic.
Temperature inside the TRX is low.	1. Ensure that the ambient temperature is within acceptable limits. Check also the fan unit. Note: An alarm is activated when the TRX's internal temperature is below -10°C.	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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.6 7603 BTS FAULTY

Table 7. 7603 BTS FAULTY

7603 BTS FAULTY			
Severity:	**Object affected:**	**Object state:**	**Unit:**
***	BTS	Disabled	VTxx, HVxx, WTxx, CTxx

Table 7. 7603 BTS FAULTY (cont.)

7603 BTS FAULTY		
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.	Automatic.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.7 7604 BTS OPERATION DEGRADED

Table 8. 7604 BTS OPERATION DEGRADED

7604 BTS OPERATION DEGRADED			
Severity:	**Object affected:**	**Object state:**	**Unit:**
**	BTS	Enabled	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**
Rx levels differ too much between main and diversity antennas.	1. Check the RSSI measurements with BTS Manager. Note: There is a hysteresis of 2 dB in the cancellation of the alarm. The alarm is cancelled when the RSSI measurement result is less than RXDL -2 dB. 2. Check and measure the antenna lines. 3. Check the BTS RF cables and connections. 4. Check that the RXDL parameter at the BSC is set to a reasonable value, taking into account the site conditions in order to prevent unnecessary alarms. 5. Replace the TRX unit.		Automatic.
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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.8 7605 BTS NOTIFICATION

Table 9. 7605 BTS NOTIFICATION

7605 BTS NOTIFICATION			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BTS	Enabled	VMFA, 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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.9 7606 TRX FAULTY

Table 10. 7606 TRX FAULTY

7606 TRX FAULTY			
Severity:	**Object affected:**	**Object state:**	**Unit:**
**	TRX	Disabled	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**
Failure detected during TRX configuring.	1. The TRX is either faulty or its frequency band is different from the one that was configured into BSC. Replace the TRX with a functional TRX or with another TRX with correct frequency band. 2. There is an incompatible TRX power type in baseband hopping sector. A mixture of High and Low Power TRXs is used in a BB hopping enabled sector. Replace the incompatible TRX power type.		Automatic.
Non EDGE TRX device type used accidentally in Edge Capable Mode.	1. Replace the Non-EDGE TRX with an EDGE TRX (STIRC sector enabled).		Automatic.

Table 10. 7606 TRX FAULTY (cont.)

7606 TRX FAULTY		
Antenna connection faulty.	1. Check the antenna and RX cabling. If the antenna and RX cabling are faulty, correct the problem and run TRX test to cancel the alarm. 2. If RX diversity is in use, check that the diversity RX cabling and/or termination is done properly. 3. If the antenna and RX cabling are OK, the TRX is faulty. Replace the faulty TRX. Note: An alarm reports only if the PMAX value is 0 or 2 (two highest power levels).	Manual (TRX lock/ unlock).
TRX test result: Antenna connection faulty.	1. Check the antenna and RX cabling. If the antenna and RX cabling are faulty, correct the problem and run TRX test again to cancel the alarm. 2. If RX diversity is in use, check that the diversity RX cabling and/or termination is done properly. 3. If the antenna and RX cabling are OK, the TRX is faulty. Replace the faulty TRX. Note: An alarm reports only if the PMAX value is 0 or 2 (two highest power levels).	Manual (TRX lock/ unlock).
External frame clock synchronisation failed.	1. Check the cable connected to the VIFA unit. 2. If the cabling is OK, check the slave cabinet's master TRX. 3. If the slave cabinet's master TRX is faulty, replace it.	Automatic.
External frame clock missing.	1. Check the cable connected to the VIFA unit. 2. If the cabling is OK, check the slave cabinet's master TRX. 3. If the slave cabinet's master TRX is faulty, replace it.	Automatic.
External frame number synchronisation failed.	1. Check the cable connected to the VIFA unit. 2. If the cabling is OK, check the slave cabinet's master TRX. 3. If the slave cabinet's master TRX is faulty, replace it.	Automatic.
Other faults.	1. Replace the TRX.	Automatic.

Note

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

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.10 7607 TRX OPERATION DEGRADED

Table 11. 7607 TRX OPERATION DEGRADED

7607 TRX OPERATION DEGRADED			
Severity:	**Object affected:**	**Object state:**	**Unit:**
**	TRX	Enabled	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**
Antenna connection faulty.	1. Check the antenna and RX cabling. If the antenna and RX cabling are faulty, correct the problem and run TRX test to cancel the alarm. 2. If RX diversity is in use, check that the diversity RX cabling and/or termination is done properly. 3. If the antenna and RX cabling are OK, the TRX is faulty. Replace the faulty TRX. Note: An alarm reports only if the PMAX value is 0 or 2 (two highest power levels).		Manual (TRX lock/ unlock).
TRX test result: Antenna connection faulty.	1. Check the antenna and RX cabling. If the antenna and RX cabling are faulty, correct the problem and run TRX test again to cancel the alarm. 2. If RX diversity is in use, check that the diversity RX cabling and/or termination is done properly. 3. If the antenna and RX cabling are OK, the TRX is faulty. Replace the faulty TRX. Note: An alarm reports only if the PMAX value is 0 or 2 (two highest power levels).		Manual (TRX lock/ unlock).
Other faults.	1. Replace the TRX.		Automatic.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.11 7609 TRE FAULTY

Table 12. 7609 TRE FAULTY

7609 TRE FAULTY			
Severity:	**Object affected:**	**Object state:**	**Unit:**

Table 12. 7609 TRE FAULTY (cont.)

7609 TRE FAULTY			
***	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 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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.12 7615 RTS IN TEST USE

Table 13. 7615 RTS IN TEST USE

7615 RTS IN TEST USE			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	RTS	Disabled	VTxx, HVxx, WTxx, CTxx
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.

Note

Alarm 7615 is sent to the BSC only when the abis loop or TRX test is started from the BTS Manager.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.13 7616 OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED

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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.14 7617 SEVERAL CALLS DROPPED DUE TO PROBLEM WITH TRANSCODER

Table 15. 7617 SEVERAL CALLS DROPPED DUE TO PROBLEM WITH TRANSCODER

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

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.15 7620 INCOMING POWER LOST

Table 16. 7620 INCOMING POWER LOST

7620 INCOMING POWER LOST			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BCF	Enabled	VSxx, HVSx, CVSx
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. Check if the BTS is connected to a battery backup unit and configured to use one. 3. If the BTS is connected to a battery backup unit, but not configured to use one, correctly configure the BTS. 4. If the mains supply is OK, and no other mains supply down situations are seen at the site, replace the power supply unit.		Automatic.

Note

When alarm 7620 is active, it will not be sent to BTS Manager, unless the BTS is connected to a battery backup unit but is not configured to use one. However, alarm cancelling can be seen on 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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.16 7621 INTOLERABLE CONDITIONS ON SITE

Table 17. 7621 INTOLERABLE CONDITIONS ON SITE

7621 INTOLERABLE CONDITIONS ON SITE			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BCF	Enabled	VTxx, HVxx, WTxx, CTxx
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 MetroSite BTS. Note: An alarm is activated when the TRX unit internal temperature exceeds +85°C.		Automatic.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.17 7622 CABINET OPEN

Table 18. 7622 CABINET OPEN

7622 CABINET OPEN			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BCF	Enabled	VMCA, HVMC
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.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.18 7801 MMI CONNECTED TO BASE STATION

Table 19. 7801 MMI CONNECTED TO BASE STATION

7801 MMI CONNECTED TO BASE STATION			
Severity:	**Object affected:**	**Object state:**	**Unit:**
*	BCF	Enabled	VTxx, HVxx, WTxx, CTxx
Fault reason:	**Instruction:**		**Alarm cancelling:**
No fault reason text with the alarm. BTS Manager is connected to MetroSite EDGE Base Station.	1. No actions required. The Additional Information field indicates whether MMI is connected to the BTS locally or remotely from NetAct. The text will read Local MMI connected or Remote MMI connected.		Automatic.

Note

Alarm 7801 applies to both local and remote BTS Manager.

See also *alarm handling, alarm table* and *alarms list* for MetroSite EDGE BTS.

5.6.19 Alarms list for MetroSite EDGE BTS

The MetroSite EDGE BTS alarms are:

Alarm 7208 / LOCAL BLOCK

Alarm 7401-7410 / EXTERNAL ALARM

Alarm 7600 / BCF FAULTY

Alarm 7601 / BCF OPERATION DEGRADED

Alarm 7602 / BCF NOTIFICATION

Alarm 7603 / BTS FAULTY

Alarm 7604 / BTS OPERATION DEGRADED

Alarm 7605 / BTS NOTIFICATION

Alarm 7606 / TRX FAULTY

Alarm 7607 / TRX OPERATION DEGRADED

Alarm 7609 / TRE FAULTY

Alarm 7615 / RTS IN TEST USE

Alarm 7616 / OSCILLATOR ADJUSTMENT TEMPORARILY INTERRUPTED

Alarm 7617 / SEVERAL CALLS DROPPED DUE TO PROBLEM WITH TRANSCODER

Alarm 7620 / INCOMING POWER LOST

Alarm 7621 / INTOLERABLE CONDITIONS ON SITE

Alarm 7622 / CABINET OPEN

Alarm 7801 / MMI CONNECTED TO BASE STATION

6 Trouble management of ITN, LMU and other transmission alarms

6.1 Trouble management of ITN alarms

6.1.1 Monitoring transmission node alarms

Purpose

The UltraSite BTS Hub or the MetroHub Manager can monitor a number of different alarms that occur in the node.

Before you start

Before you can see the STM-1 alarms, you must enable/disable alarm monitoring in the **Alarm Monitoring States** window. See Section *Configuring FXC STM-1 alarm monitoring states* for details.

Summary

The manager provides the following information about any alarm that has occurred in the node:

- **Severity** - severity class of the alarm
- **Location** - unit the alarm is located in
- **Description** - brief description of the alarm
- **Time stamp** - date and time when the alarm was detected
- **Code** - fault code of the alarm
- **Activation** (in the alarm history view) – indicates if an alarm is active or cancelled

The unit alarm status in **Equipment View** is visible only when the **Alarms** window is open and the alarm polling is on.

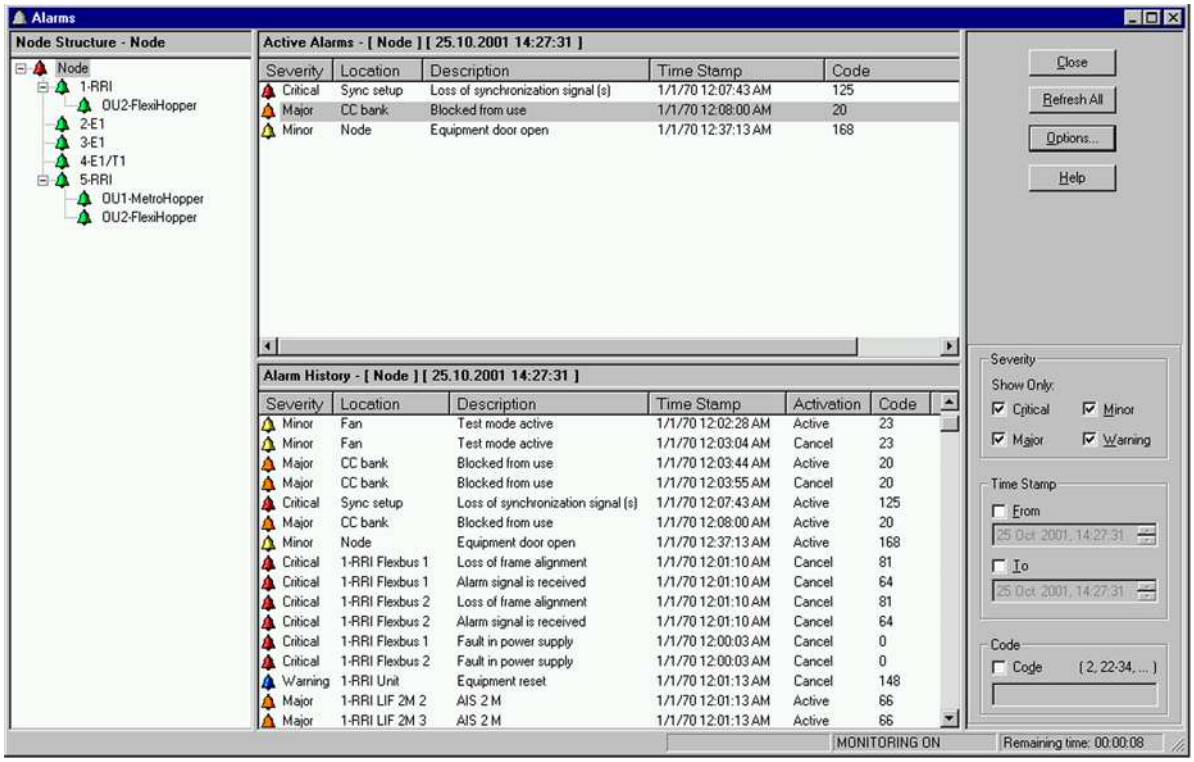


Figure 6. Alarms window

Note that if the alarm(s) and the alarm history of a unit cannot be read, the state is *Missing unit* in the **Equipment** view.

Tip

If the alarm history is not displayed, select the option button to enable the alarm history.

Caution

A very small alarm-monitoring interval puts a strain on the Q1 bus resources and delays other activities. Do not set the alarm-monitoring delay to a very small value when monitoring a network element remotely.

Severity

Severity shows the severity class of the alarm as it appears in the node manager.

Colour codes of the alarms

The alarms are colour-coded according to the **Severity** of the alarm.

Table 20. Colour codes of the alarms

Severity	Symbol	Colour
Critical (***)		Red
Major (**)		Orange
Minor (*)		Yellow
Warning (W)		Blue

Location

The **Location** field indicates which unit or interface is producing the alarm.

By default, the alarms are listed by **Time stamp**. You can sort the alarms by clicking on the column heading in the window. To sort the alarms in reverse order, click a heading a second time.

Description and code

The alarm descriptions give the following information:

Title row shows the fault code and the alarm name.

Severity shows the default severity class of the alarm as it appears in the node manager.

- *Critical* is used to indicate a fault situation that requires immediate measures. A critical alarm indicates possible service degradation.
- *Major* is used to indicate a fault situation that requires some measures during normal working hours.
- *Minor* is used to indicate a fault situation that does not require any measures. The alarm is cancelled when the fault situation is cleared.
- *Warning* can be used to provide information. A warning is not an alarm, and it does not indicate a fault. Warnings are not cancelled.

Note

Alarm severity can be modified in the Alarm Properties dialogue box. The modified alarm severity is visible in the local manager alarm window. The alarm is reported to the NMS and BSC with an alarm code. Local alarm severity modification does not override global severity settings in the NMS or BSC.

Fault reason gives the possible cause of the alarm.

Description contains location and consequence information.

Location shows the unit and the block indicating the alarm.

Consequence shows whether an indication signal is sent upstream or downstream.

Instructions gives instructions on how to remedy the fault.

Cancelling gives instructions on how the alarm is cancelled.

Tip

For information on how to replace units or carry out other maintenance tasks, please refer to the instructions in this documentation.

Steps

1. Open the alarms window.

Steps

a. Select Alarms → View.

The **Alarms** window opens and a list of active alarms, the node structure view, and the filter view are shown.

2. Open the alarm history view.

Steps

a. Click the Options button in the Alarms window.

The **Alarm Options** window opens.

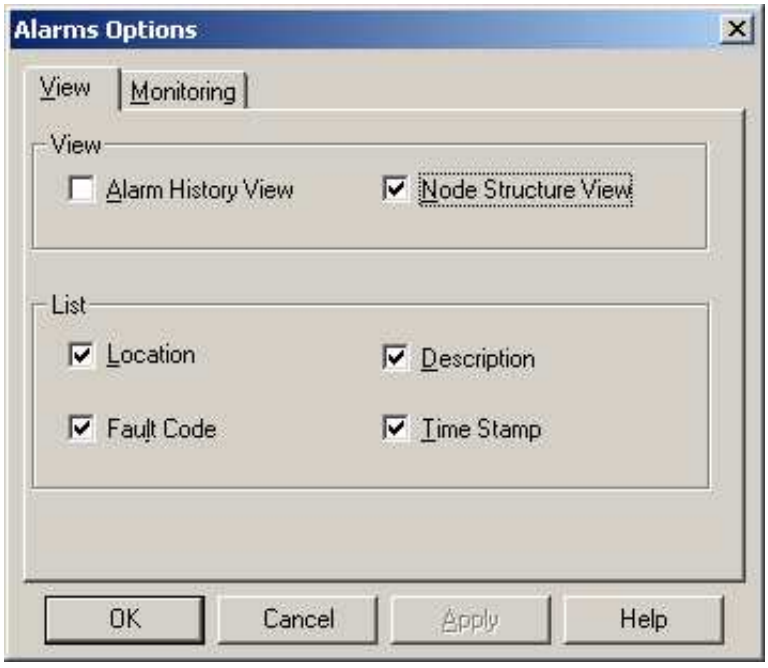


Figure 7. Alarm Options window, View tab

b. Tick the Alarm History View box in the View tab.

c. Click OK.

The alarm history view opens.

Further information

Past alarms which have occurred in the network element are shown in the **Alarm History** window (that is, the alarm polling history). The alarm history view contains a header that shows the location and time of the last refresh, that is, when the currently shown events were last read.

You can sort the alarm history by clicking the column heading in the window. Every time the column is clicked, the sort order is reversed.

The **Activation** field lists if an alarm is active or if it has been cancelled.

The alarm history is saved as a text file with the extension .alr and must be opened with a text editor.

3. Keep the list of active alarms updated by enabling alarm monitoring.

Steps

a. Click Options in the Alarms window.

The **Alarm Options** window opens.

b. Click the Monitoring tab.

The **Monitoring** tab of the **Alarm Options** window is displayed.

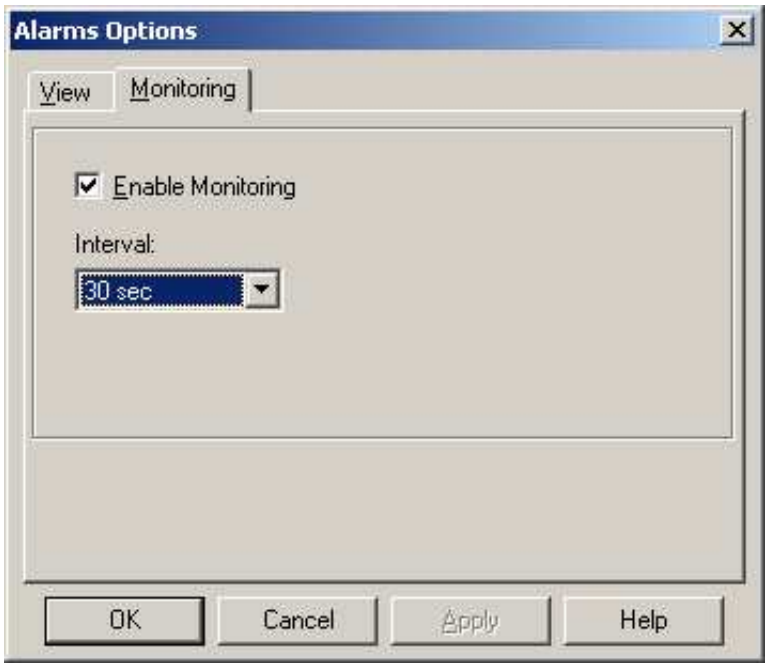


Figure 8. Alarm Options window, Monitoring tab

c. Tick the Enable Monitoring box.

d. Select the desired interval.

e. Click OK.

A remaining time clock indicator in the right bottom corner shows the interval progressing.

Further information

The most critical alarms of the FXC units are shown as bell symbols in the node structure view. The bell symbols show the colour corresponding to the highest severity of the alarms present in the unit in question. For example, if the most severe alarm is a critical alarm, the bell symbol is red.

When monitoring is enabled, the LED states are also updated in the **Equipment** window.

4. Refresh active alarms and alarm history.

Steps

a. Click the Refresh All button in the Alarms window.

The information in the **Alarms** window and alarm history view is updated.

5. Select filtering options.

Summary

The filter options are located on the right hand side of the alarms window. You can select the alarms to be displayed according to severity, time stamp, and code.

Steps

a. Tick the desired filtering options.

For example, if you want to be notified about critical and major alarms only, tick those boxes only.

Only the selected alarms are displayed in the alarms window.

6. Change the alarm list options.

Steps

a. Click Options in the Alarms window.

b. In the View tab, select the columns you want to be displayed in the alarms window.

c. Click OK.

Only the selected columns are displayed in the alarms window.

Further information

By right-clicking the mouse, you can open a pop-up menu for sorting and viewing alarms.

6.1.2 Configuring FC STM-1 alarm monitoring states

Purpose

You can enable/disable alarm monitoring in the Alarm Monitoring States window.

Note that current alarms are managed under the MetroSite BTS Hub Manager or MetroHub Manager Alarms menu.

Alarm monitoring means checking the status of determined alarm sources at regular intervals. Alarms are not visible if the alarm monitoring is off (the default state is off).

You need to activate alarm monitoring separately for each interface (STM-1 interfaces 1 and 2, payload for interfaces 1 and 2, and the 20 SDH-PDH channels) to receive alarms.

Before you start

In alarm description tables, an asterisk (*) before the alarm name means that the alarm is masked when alarm monitoring is off (for example, *Loss of pointer).

Steps

1. **Click FXC STM-1 → Alarm Monitoring States to open the window (see the following figure).**

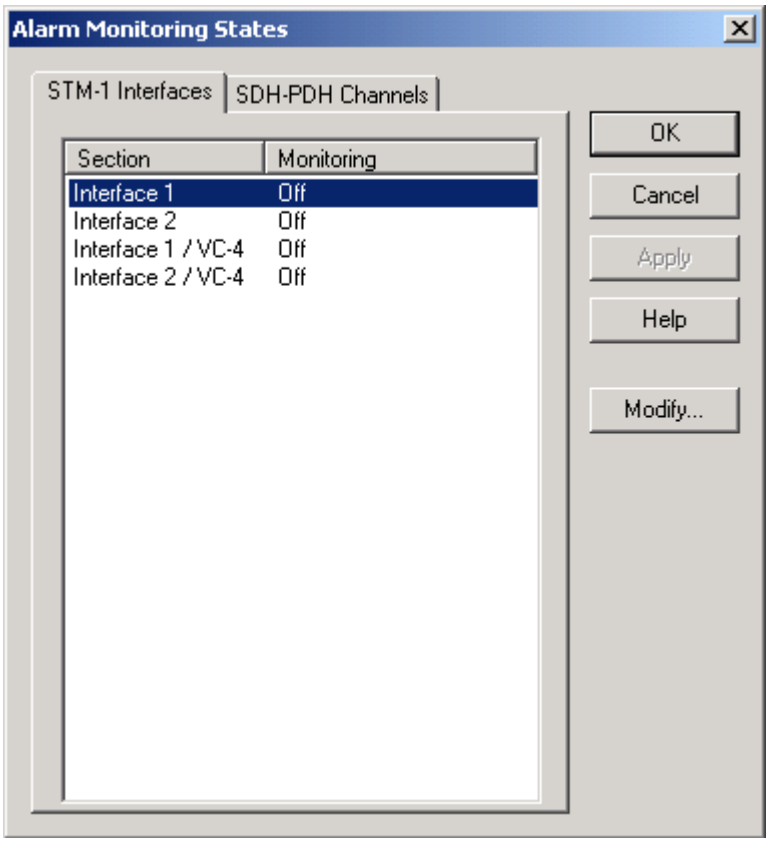


Figure 9. FXC STM-1 Alarm Monitoring States, STM-1 Interfaces

2. **Click the tabs (STM-1 Interfaces / SDH-PDH Channels) to switch between the pages.**

3. **On the STM-1 Interfaces page, select the section you want to modify by clicking it.**

   Select the section/sections you want to modify by clicking. To select multiple sections, hold down the Ctrl key or the Shift key on your PC keyboard while clicking.

4. **Click Modify to open the dialogue box.**

5. **Switch alarm monitoring on/off by selecting/clearing the Monitoring box.**

6. **Click OK.**

7. **Send the changes to the node by clicking Apply in the Alarm Monitoring States window.**

8. **In the SDH-PDH Channels page, select the channel/s to be modified by clicking them.**

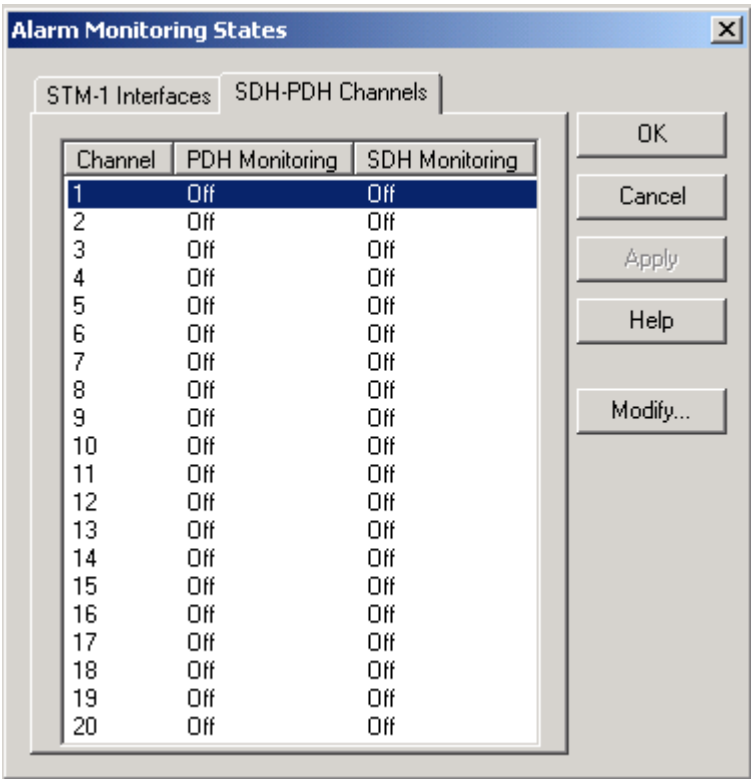


Figure 10. STM-1 Alarm Monitoring States, SDH-PDH Channels

9. **Click Modify to open the dialogue box.**

10. **Switch alarm monitoring on/off by selecting/clearing the SDH and/or the PDH box.**

11. **Click OK.**

12. **Send the changed settings to the node by clicking Apply in the Alarm Monitoring window.**

13. **Click OK to close the window.**

6.1.3 Common node alarms

6.1.3.1 20 Blocked from use

Severity

Major

Fault reason

When a node has a cross-connection terminated in an interface, which is not in use, the cross-connection bank shows pending cross-connections. The cross-connections are also set to pending state, if a slave unit with cross-connections is removed without uninstalling it first. In these cases the cross-connection remains in the cross-connection bank, but it is not set in the hardware.

Description

Location: Node cross-connection bank

Instructions

Check that all interfaces, in which cross-connections have been created, are in use. Remove cross-connections that are connected to non-existing interfaces. Reinstall the removed unit(s).

Cancelling

Automatically cancelled when there are no blocked cross-connections.

6.1.3.2 8062 No connection

Table 21. 8062 No connection

8062 No connection		
Severity:	**Description:**	
***	Location: Node Trunet	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Enabling Trunet has failed, because the cross-connection capacity required is not free.	Disable Trunet and remove the cross-connections that are using the capacity needed for Trunet. After performing this action, re-enable Trunet.	Automatically cancelled when Trunet can create the cross-connections that are needed.

6.1.3.3 8112 Frequency error

Table 22. 8112 Frequency error

8112 Frequency error		
Severity:	**Description:**	
*	Location: Node synchronisation setup	
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. The node is running on the internal clock as configured in the timing priority list, as none of the Rx or external clock sources defined in the timing priority list is valid. 2. The Rx source signal in use has its MCB in state '1'. An Rx source signal with MCB state '1' is selected as the synchronisation source if all other configured synchronisation sources have failed. If there are two synchronisation sources with the MCB state '1', the source with higher priority is selected.	Check the incoming signals in the synchronisation priority list.	Automatically cancelled when at least one Rx signal in the priority list is valid.

6.1.3.4 8122 Synchronizing fault

Table 23. 8122 Synchronizing fault

8122 Synchronizing fault		
Severity:	**Description:**	
**	Location: Backplane	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 23. 8122 Synchronizing fault (cont.)

8122 Synchronizing fault		
Synchronisation is stuck to a currently active source. Switching off this source did not succeed.	Reset all units by selecting **Maintenance → Resets → HW reset**. If the reset does not cancel the alarm, first replace the unit that provides the active synchronisation source. If this does not cancel the alarm, replace the unit in slot 1 (master unit).	If the alarm is caused by internal deadlock of the synchronisation system, the alarm is cancelled after reset. If the alarm is caused by a defect in HW, the alarm is cancelled after the replacement of the defect unit.

6.1.3.5 8124 Synchronising fault in clock recovery

Table 24. 8124 Synchronising fault in clock recovery

8124 Synchronising fault in clock recovery		
Severity:	**Description:**	
**	Location: Node synchronisation setup	
Fault reason:	**Instruction:**	**Alarm cancelling:**
A missing signal from an external synchronisation input clock signal. The signal has been configured as an available synchronisation source in the timing priority list.	Check the external synchronisation input clock signal is present at the synchronisation input interface. If the external synchronisation input clock signal is not needed, remove the related entry in the timing priority list.	Automatic.

6.1.3.6 8125 Loss of synchronisation signals

Table 25. 8125 Loss of synchronisation signals

8125 Loss of synchronisation signals		
Severity:	**Description:**	
***	Location: Node synchronisation setup Backplane	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 25. 8125 Loss of synchronisation signals (cont.)

8125 Loss of synchronisation signals		
All synchronisation sources from the priority list are unavailable. The active synchronisation source does not provide the clock signal on the backplane.	1. Check the incoming signals in the synchronisation priority list. 2. Ensure that location of the alarm is backplane. Reset all units by selecting **Maintenance** → **Resets** → **HW reset**. If the reset does not cancel the alarm, replace first the unit that provides the active synchronisation source. If this does not cancel the alarm, replace the unit in slot 1 (master unit).	Automatically cancelled when at least one synchronisation source in the priority list is available. If the alarm is caused by internal deadlock of the synchronisation system, the alarm is cancelled after reset. If the alarm is caused by a defect in HW, the alarm is cancelled after the replacement of the defect unit.

6.1.3.7 8139 Subrack is missing units

Table 26. 8139 Subrack is missing units

8139 Subrack is missing units		
Severity:	**Description:**	
***	Location: 1. Node HW setup 2. DIU (only MetroHub) 3. FAN (only MetroHub) 4. Power supply 1/2 (only MetroHub) 5. Battery (only MetroHub)	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The unit is logically installed, but it has been physically removed, or it is broken.	Uninstall the removed unit logically, or replace the broken unit.	Automatically cancelled.

6.1.3.8 8140 Subrack has excessive units

Table 27. 8140 Subrack has excessive units

8140 Subrack has excessive units		
Severity:	**Description:**	
**	Location: 1. Node HW setup 2. FAN (only MetroHub) 3. Power supply 1/2 (only MetroHub) 4. Battery (only MetroHub) 5. DIU (only MetroHub) 6. DIPx (only MetroHub)	
Fault reason:	**Instruction:**	**Alarm cancelling:**
A unit which is physically present has not been logically installed with the manager.	Install the unit.	Automatically cancelled when the excessive unit has been installed logically with the manager.

6.1.3.9 8142 Fault in installation of equipment

Table 28. 8142 Fault in installation of equipment

8142 Fault in installation of equipment		
Severity:	**Description:**	
***	Location: Node HW setup	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The installed FXC or outdoor unit has been changed to a unit of a different type than specified in the installation.	Uninstall the unit that is of the wrong type, or run the "Install all" command. You can also replace the unit with the same type of unit as used earlier.	Automatically cancelled.

6.1.3.10 8162 Database full

Table 29. 8162 Database full

8162 Database full	
Severity:	**Description:**

Table 29. 8162 Database full (cont.)

8162 Database full		
Warning	Location: Node or FXC unit event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded in the database. This happens when the poller (NMS/BSC) is unable to poll the unit and thus it clears the alarm history.	Check that the polling is working.	Warnings are not cancelled.

6.1.3.11 221 Version mismatch

Severity

Critical

Fault reason

At least one slave unit is not compatible with the master unit.

Description

Location: Node HW setup

Instructions

Check the SW versions of the units and upgrade them to the wanted level, starting first with the PDH DNCU and the PDH DNAU units, and then continue with FXC STM-1 and the FXC Bridge SDH SW.

The 221 Version mismatch alarm must be cancelled in order to manage the node successfully.

Cancelling

Automatically cancelled when all units are compatible with the master unit.

6.1.3.12 8240 Active alarm point

Table 30. 8240 Active alarm point

8240 Active alarm point		
Severity:	**Description:**	
**	Location: DIUA EAC input 1...10 in MetroHub. VIFA unit in MetroSite EDGE and ConnectSite 10 BTSs. BOI unit in UltraSite EDGE and ConnectSite 100 BTSs.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
External alarm is active, user-defined alarm is on, or EAC incorrectly defined.	Check that the definition is correct and that the external circuitry works correctly.	Automatically cancelled.

6.1.4 Common alarms for FXC transmission units

6.1.4.1 8021 Loop to interface

Table 31. 8021 Loop to interface

8021 Loop to interface		
Severity:	**Description:**	
**	Location: 1. FXC RRI Flexbus. 2. FXC RRI Flexbus channel. 3. FXC RRI platform interface. 4. FXC E1/T1 interface. Consequence: 1. AIS is connected to all received Flexbus channels. 2. AIS is connected to the receiving direction of the looped channel. 3. AIS is connected to the receiving direction of the looped interface. 4. AIS to Rx direction (towards the cross-connection field).	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 31. 8021 Loop to interface (cont.)

8021 Loop to interface		
1. The Flexbus interface loop is set to active. The whole received Flexbus signal is looped back to the OU (or another IU). The IU - OU communication is cut during the loop. 2. The Flexbus channel loop to interface is set to active. The whole received Flexbus channel signal is looped back to the OU (or another IU). 3. The platform interface loop to interface is set to active. The whole received platform signal is looped back to the OU (or another IU) without regenerating time slot 0. 4. The user has activated an interface loop.		Loopbacks are automatically removed, after the control timeout has expired. A loop can also be removed with the manager by setting the interface, channel or Flexbus back to the normal state.

6.1.4.2 8022 Loop to equipment

Table 32. 8022 Loop to equipment

8022 Loop to equipment		
Severity:	**Description:**	
**	Location: 1. FXC RRI Flexbus. 2. FXC RRI platform interface. 3. FXC E1/T1 interface. Consequence: 1. AIS is connected to all transmitted Flexbus channels in the receiving equipment. 2. AIS to Tx direction. 3. AIS to Tx direction.	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 32. 8022 Loop to equipment (cont.)

8022 Loop to equipment		
The user has activated an equipment loop. Tx signal of the interface is looped back to the equipment.		Loopbacks are automatically removed, after the control timeout has expired. A loop can also be removed with the manager by setting the interface or Flexbus back to the normal state.

6.1.4.3 8025 Test generator on

Table 33. 8025 Test generator on

8025 Test generator on		
Severity:	**Description:**	
**	Location: FXC unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
User-activated signal test generator of the unit is active.		The alarm is cancelled when the signal test has been completed.

6.1.4.4 8032 Loss of outgoing signal

Table 34. 8032 Loss of outgoing signal

8032 Loss of outgoing signal		
Severity:	**Description:**	
***	Location: FXC unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
During performing a signal test, the received signal was lost, indicating that some unit is not functioning properly.	Find the broken unit and replace it. The faulty unit can be different to the unit in which the alarm is active. The alarm is activated in the unit where pattern detection is done. After changing the unit, run the test again.	The alarm is cancelled when the signal test has been completed.

6.1.4.5 8052 Loss of incoming 34M signal

Table 35. 8052 Loss of incoming 34M signal

8052 Loss of incoming 34M signal		
Severity:	**Description:**	
***	Location: 1. FXC RRI platform interface. 2. FXC E1 interface. Consequence: FEA alarm (TS0/B3) is generated to the far-end AIS to Rx direction.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Incoming 34M signal is not received.	1. Replace the unit. 2. Check the interface settings and cabling at both ends.	Automatically cancelled when the signal is received.

6.1.4.6 8066 AIS 2M

Table 36. 8066 AIS 2M

8066 AIS 2M		
Severity:	**Description:**	
**	Location: 1. FXC RRI platform interface. 2. FXC E1 interface. Consequence: FEA alarm (TS0/B3) generated to the far-end.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Alarm signal is received, but the received signal has no framing and it is all ones.	The signal is cut somewhere in the network and AIS replacement has taken place. Follow the 2M signal in the network to find the place where AIS replacement has occurred. The link is usually faulty or it has configuration errors. Other alarms may also cause this alarm, because of AIS switching in the receiving direction, as shown in the consequence field of some alarms.	Automatically cancelled when AIS no longer received.

6.1.4.7 8081 Loss of frame alignment

Table 37. 8081 Loss of frame alignment

8081 Loss of frame alignment		
Severity:	**Description:**	
***	Location: 1. FXC RRI Flexbus. 2. FXC RRI platform interface. 3. FXC E1/T1 interface. Consequence: 1. AIS is connected to all received Flexbus channels. 2. AIS is connected to the receiving direction of the platform interface. FEA alarm (TS0/B3) is generated to the far-end. 3. FEA alarm is generated to the far-end AIS to Rx direction.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The interface does not detect framing from the received signal.	1. Check in the Configuration window that all installed units are present. A faulty outdoor unit may not be present in the view. Try disconnecting the power feed and then connect it back on. If the outdoor unit does not stay present, replace it. • Check that the radios are configured correctly (no configuration error or fault in unit alarms). If the receiving level is sufficient, check the following: a. Both ends of the hop are set to the same capacity. b. Flexbus interfaces are in use. c. The outdoor unit's interleaving settings are the same at both ends of the hop. • Check with Flexbus loop to equipment that the indoor unit locks to its own signal. If not, replace it. 2. Check in the Cross-connections window that the right signal is connected to this interface at both ends of the hop. • Use a platform interface loop to equipment to check that the platform interface locks to its own transmit signal. If not, replace the unit. • Use Flexbus loop to equipment and check that the platform interface locks to its own signal. If not, replace the unit. 3. Check the interface and synchronisation settings at both ends. If the settings are correct, replace the unit. Check the Flexbus cable.	Automatically cancelled, when the frame is received correctly.

6.1.4.8 86 Loss of CRC multiframe alignment

Severity

Critical

Fault reason

Platform interface has lost CRC frame alignment.

Description

Location:

1. FXC RRI platform interface.
2. FXC E1 interface.

Consequence:

- AIS is connected to the receiving direction of the platform interface.
- FEA alarm (TS0/B3) generated to the far-end.

Instructions

Check that the other end of the link has CRC in use. Use the same instructions as in the *Loss of frame alignment* alarm to locate the fault.

Cancelling

Automatically cancelled.

6.1.4.9 8099 Error rate > 1 E-3

Table 38. 8099 Error rate > 1 E-3

8099 Error rate > 1 E-3	
Severity:	**Description:**

Table 38. 8099 Error rate > 1 E-3 (cont.)

8099 Error rate > 1 E-3		
***	The bit error ratio is determined by evaluating the CRC checksum and the frame alignment word. As a result, the exact bit error ratio cannot be measured, but rather an approximate value is obtained. Location: 1. FXC RRI Flexbus 2. FXC RRI platform interface 3. FXC E1/T1 interface 4. FXC RRI protected hop Consequence: 1. AIS is connected to all received Flexbus channels. 2. FEA alarm (TS0/B3) generated to far-end AIS to Rx direction. 3. FEA alarm (TS0/B3) generated to far-end AIS to Rx direction. 4. AIS is connected to all received Flexbus channels.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Received signal bit error ratio is worse than 1.0 * 10^{-3}. If the location is FXC RRI protected hop, both links in the HSB hop have a bit error ratio worse than 1.0 * 10^{-3}.	1. 'Alarm signal received' also causes this alarm. The signal may be faded in the radio path or the antenna alignment has changed. 2. If the Flexbus, to which this interface has been connected, has the same alarm, see its instructions. If the Flexbus does not have this alarm, use loop to equipment for both the platform interface and the Flexbus. If either one of the loops gives this alarm, replace the unit. 3. Check the cabling between the units. 4. 'Alarm signal received' also causes this alarm. The signal may be faded in the radio path or the antenna alignment has changed.	1 - 4. Automatically cancelled when the received signal BER is better than 1.0 * 10^{-3}. If the radio signal is faded, it is restored when the fading stops. If the antenna alignment has changed, align the antennas according to the instructions in the radio documentation.

6.1.4.10 8102 Error rate > 1 E-6

Table 39. 8102 Error rate > 1 E-6

8102 Error rate > 1 E-6	
Severity:	**Description:**
**	The bit error ratio is determined by evaluating the CRC checksum and the frame alignment word. As a result, the exact bit error ratio cannot be measured, but rather an approximate value is obtained. Location: 1. FXC RRI platform interface. 2. FXC E1/T1 interface.

Table 39. 8102 Error rate > 1 E-6 (cont.)

8102 Error rate > 1 E-6		
Fault reason:	**Instruction:**	**Alarm cancelling:**
Received signal bit error ratio is worse than 1.0 * 10^{-6}.	Most commonly caused by radio path fading. If it persists for a long time, use loop to equipment for both the platform interface and Flexbus. If either of the loops gives this alarm, replace the unit.	Automatically cancelled, when the received signal is without errors.

6.1.4.11 8126 Unit function degraded

Table 40. 8126 Unit function degraded

8126 Unit function degraded		
Severity:	**Description:**	
**	Location: FXC unit or synchronisation database of FXC STM transmission units	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 40. 8126 Unit function degraded (cont.)

8126 Unit function degraded		
Operating voltage -5V has been detected to be out of range.	From ITN C3 CD2 release onwards, this fault reason causes alarm 8126. ITN SW C3 CD1 and later releases can operate in a wider range of reference voltages. The alarm is active if the -5V reference voltage is outside the new supported range. In this case, measure the -5V voltage. This can be done through the Element Manager (FXC unit menu > Measurements). The supported range is: -4.25 V to -6.00 V. A -5V voltage which is out of range, does not affect the normal operation of the BTS. However this reference voltage is used for calibration of the internal oscillator of the FXC unit, which becomes the active synchronisation source during a transmission link break or degradation. Without an accurate reference voltage, the frequency accuracy of the oscillator cannot be guaranteed. Therefore during transmission link degradation or breaks, third party transmission equipment synchronised to the BTS may be affected (e.g. detects the synchronisation degradation and switches to internal until manual reset). The fault does not have any impact on the operation of the BTS or transmission if: • there are no other transmission alarms active and • there is no service degradation at the BTS and • there is no third party transmission equipment synchronised to the FXC unit or if the equipment automatically recovers from synchronisation degradation In this case the alarm can be inhibited in the unit alarm properties window of the Element Manager. If in contrast the troubleshooting shows that there is an impact for transmission or the BTS, the transmission backplane should be replaced.	This is a permanent alarm, thus the alarm is not cancelled when the voltage is again inside the limits due to fluctuations. Once the root cause of the alarm has been corrected, the alarm will be cancelled upon reset of the FXC unit. The alarm can be inhibited for the affected site, if the troubleshooting has shown that there is no impact for the BTS or transmission (see instructions).
Defect in the synchronisation HW. Synchronisation of the node might be lost or degraded. Only for FXC Bridge or FXC STM-1.	If the -5V voltage is inside the limits (see above instructions) and the alarm remains active after resetting the unit, then the root cause is a defect in the synchronisation HW. If there are active synchronisation alarms, then the unit should be replaced.	The alarm is permanent. A reset of the FXC unit causes a temporary alarm cancellation. Once the root cause of the alarm has been corrected, the alarm will be cancelled.

6.1.4.12 137 Fault in oscillator

Severity

Major

Fault reason

Unit oscillator is not working correctly.

Description

Location: FXC unit

Instructions

Replace the unit.

Note that the 16 MHz oscillator in the master unit is used as the internal clock of the node. If a slave unit raises the alarm, there is no immediate need to replace the unit.

Cancelling

Reset the unit to cancel the alarm.

6.1.4.13 8148 Equipment reset

Table 41. 8148 Equipment reset

8148 Equipment reset		
Severity:	**Description:**	
Warning	Location: FXC unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The unit has started up after power-on or reset.		Warnings are not cancelled.

6.1.4.14 8150 Fault in unit

Table 42. 8150 Fault in unit

8150 Fault in unit		
Severity:	**Description:**	
***	Location: FXC unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Operating voltage +5V has been detected to be out of range. The transmission backplane voltage regulator may be defect.	ITN SW C3 CD1 and later releases can operate in a wider range of reference voltages. Update the SW on the FXC unit to ITN C3 CD1 or newer. The latest ITN SW C3 CD1 can operate in a wider range of voltages. In some cases the alarm may still be active after the SW upgrade if the reference voltage is outside the new supported range. In this case, measure the +5V voltage. This can be done through the Element Manager (FXC unit menu > Measurements). The supported voltage range is: +4.25 V to + 5.58 V. If the deviation of the +5V voltage persists for a long time, the FXC unit can be damaged. For this reason, the transmission backplane should be replaced.	This is a permanent alarm, thus the alarm is not cancelled when the voltage is again inside the limits due to fluctuations. A reset of the FXC unit causes a temporary alarm cancellation. The alarm is cancelled permanently upon reset of the FXC unit If the root cause of the alarm has been corrected.

Table 42. 8150 Fault in unit (cont.)

8150 Fault in unit		
Operating voltage -5V has been detected to be out of range.	This fault reason causes alarm 8150 in ITN C3 CD1 and previous releases. In later releases alarm 8126 is reported, as it matches better the actual effect of the fault. ITN SW C3 CD1 and later releases can operate in a wider range of reference voltages than previous releases. Upgrade the SW on the FXC units accordingly. In some cases the alarm may still be active after the SW upgrade if the reference voltage is outside the new supported range. In this case, measure the -5V voltage. This can be done through the Element Manager (FXC unit menu > Measurements). The supported range is: -4.25 V to -6.00 V. A -5V voltage which is out of range, does not affect the normal operation of the BTS. However this reference voltage is used for calibration of the internal oscillator of the FXC unit, which becomes the active synchronisation source during a transmission link break or degradation. Without an accurate reference voltage, the frequency accuracy of the oscillator cannot be guaranteed. Therefore during transmission link degradation or breaks, third party transmission equipment synchronised to the BTS may be affected (e.g. detects the synchronisation degradation and switches to internal until manual reset). The fault does not have any impact on the operation of the BTS or transmission if: • there are no other transmission alarms active and • there is no service degradation at the BTS and • there is no third party transmission equipment synchronised to the FXC unit or if the equipment automatically recovers from synchronisation degradation In this case the alarm can be inhibited in the unit alarm properties window of the Element Manager. If in contrast the troubleshooting shows that there is an impact for transmission or the BTS, the transmission backplane should be replaced.	This is a permanent alarm, thus the alarm is not cancelled when the voltage is again inside the limits due to fluctuations. A reset of the FXC unit causes a temporary alarm cancellation. Once the root cause of the alarm has been corrected, the alarm will be cancelled permanently upon reset of the FXC unit. The alarm can be inhibited for the affected site, if the troubleshooting has shown that there is no impact for the BTS or transmission (see instructions).

6.1.4.15 8179 Far-end alarm

Table 43. 8179 Far-end alarm

8179 Far-end alarm		
Severity:	**Description:**	
**	Location: 1. FXC RRI platform interface. 2. FXC E1 interface.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Sent by the equipment in the far-end (TS0/B3); indicates a serious fault in the received signal of the far-end equipment.	Check the signal flow from the transmit direction of the alarming interface to the far-end.	Automatically cancelled, when FEA not detected from the far-end any longer.

6.1.5 Specific alarms for FXC E1/T1 transmission units

6.1.5.1 56 Loss of incoming 1.5M signal

Severity

Critical

Fault reason

Proper 1.5M signal is not received.

Description

Location: FXC T1 interface

Consequence: Yellow alarm generated to far-end and AIS to Rx direction

Instructions

Check the interface cabling.

Cancelling

Automatically cancelled, when the signal is received again.

6.1.5.2 8073 AIS 1.5M

Table 44. 8073 AIS 1.5M

8073 AIS 1.5M		
Severity:	**Description:**	
**	Location: FXC T1 interface Consequence: Yellow alarm (TS0/B3) generated to the far-end and AIS to Rx direction.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Alarm signal is received, but the received signal has no framing and it is all ones.	The signal is cut somewhere in the network and AIS replacement has taken place. Follow the 1.5M signal in the network to find out the place where AIS replacement has occurred. The link is usually faulty or it has configuration errors. Other alarms may cause this alarm because of AIS switching in the receiving direction as shown in the consequence field of some alarms.	Automatically cancelled, when the signal is acceptable.

6.1.5.3 8172 Yellow alarm

Table 45. 8172 Yellow alarm

8172 Yellow alarm		
Severity:	**Description:**	
**	Location: FXC T1 interface	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The yellow alarm is sent by the equipment in the far-end, it indicates a serious fault in the received signal of the far-end equipment.	Check interface and synchronisation settings at both ends.	Automatically cancelled.

6.1.6 Specific alarms for FXC RRI transmission units

6.1.6.1 8064 Alarm signal received

Table 46. 8064 Alarm signal received

8064 Alarm signal received		
Severity:	**Description:**	
**	Location: FXC RRI Flexbus Consequence: AIS is connected to all received Flexbus channels. This causes an AIS 2 Mbit/s alarm to all used platform interfaces that are connected to the Flexbus interface, which is causing the alarm.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
An outdoor unit has lost frame lock and it has replaced the frame with a pseudo-frame to ensure communication between the indoor and outdoor units.		If the radio signal is faded, it recovers when the fading stops. If the oudoor unit is FlexiHopper (Plus), check the maximum Tx power setting. If a stronger Tx power is allowed, it withstands fading better.

6.1.6.2 8128 Fault in equipment

Table 47. 8128 Fault in equipment

8128 Fault in equipment		
Severity:	**Description:**	
**	Location: FXC RRI protection lost.	
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 47. 8128 Fault in equipment (cont.)

8128 Fault in equipment		
Protection is lost and a redundant signal path is in use. Reasons: 1. OU1 transmitter error. Outdoor unit in Flexbus 1 is faulty or not present. 2. OU2 transmitter error. Outdoor unit in Flexbus 2 is faulty or not present. 3. OU1 receiver error. Outdoor unit in Flexbus 1 is not locked to the Rx signal, or it is faulty or not present. 4. OU2 receiver error. Outdoor unit in Flexbus 2 is not locked to the Rx signal, or it is faulty or not present.	Check the outdoor unit installation. If the configuration is correct and the signal is valid, change the faulty outdoor unit.	Automatically cancelled, when the protection is in order.

6.1.6.3 8141 Forced control on

Table 48. 8141 Forced control on

8141 Forced control on		
Severity:	**Description:**	
***	Location: FXC RRI operation mode	
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. The user has started Automatic Fading Margin Measurement (AFMM), and AFMM forced control is on. Protection is disabled until AFMM is completed. 2. Forced controls on OU Tx. The user has selected the active transmitter using forced control. 3. Forced controls on OU Rx. The user has selected the active receiver using forced control.		Automatically cancelled, when the measurement has finished.

6.1.6.4 8143 Fault in changeover function

Table 49. 8143 Fault in changeover function

8143 Fault in changeover function		
Severity:	**Description:**	
***	Location: FXC RRI operation mode	
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. OU configuration is incompatible with the protection mode. 2. OU configuration checksum is missing, or incompatible with the OU software. The outdoor unit SW is incompatible with the protection mode or the outdoor unit is faulty.	1. Check Tx frequency and interleaving settings. 2. Update the outdoor unit software.	Automatically cancelled, when the problem has been corrected.

6.1.7 Specific alarms for FC STM transmission units

6.1.7.1 8124 Synchronisation fault in clock recovery

Table 50. 8124 Synchronisation fault in clock recovery

8124 Synchronisation fault in clock recovery		
Severity:	**Description:**	
**	Location: Synchronisation database	
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. A missing synchronisation input clock signal with a priority is present on the synchronisation list. 2. Missing or degraded signals.	1. Check the settings of interface 1 and/or 2 under SDH priorities in the Synchronisation dialogue box. 2. Check the signal quality statistics.	Not applicable.

6.1.7.2 8125 Loss of synchronization signal(s)

Table 51. 8125 Loss of synchronization signal(s)

8125 Loss of synchronization signal(s)		
Severity:	**Description:**	
***	Location: Synchronisation database Consequence: 2M-AIS upstream	
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. The transmission node is not receiving synchronisation from the interfaces (SNC protection). 2. Missing or degraded signals.	1. Check the settings in the synchronisation dialogue box, or the settings at the other side of the link. 2. Check the signal quality statistics.	Not applicable.

6.1.7.3 8141 Forced control on

Table 52. 8141 Forced control on

8141 Forced control on		
Severity:	**Description:**	
***	Location: Synchronisation database CC database	
Fault reason:	**Instruction:**	**Alarm cancelling:**
STM interface 1 or 2 was forced to be used as the synchronisation source. An SNC protection group status is forced to either the protecting or protected path.	Configure synchronisation to the use priorities mode. Configure the SNC protection group to the automatic protection switch mode.	Not applicable.

6.1.7.4 8152 Fault in block

Table 53. 8152 Fault in block

8152 Fault in block		
Severity:	**Description:**	
***	Location: Synchronisation database	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault in the FXC STM-1 unit oscillator, which causes also the *Fault in unit* alarm.	Replace the FXC STM-1 unit.	Not applicable.

6.1.7.5 8162 Database full

Table 54. 8162 Database full

8162 Database full		
Severity:	**Description:**	
Warning	Location: Event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded in the database. This happens when the poller (NMS/BSC) is unable to poll the unit and thus clears the alarm history.	Make sure that polling is working.	Warnings are not cancelled.

6.1.7.6 165 Real time lost fault

Severity

Major

Fault reason

Real time clock is not set.

Description

Location: Node

Instructions

Not applicable, see Cancelling.

Cancelling

This alarm is cancelled automatically within 24 hours because the FXC STM node gets an RTC update periodically.

Tip

Automatic cancelling only occurs if FXC STM is connected to the NMS.

6.1.7.7 184 Real time updated

Severity

Warning

Fault reason

Real time clock (RTC) time difference between the node (internal) and poller (network). The difference was over 1s and the RTC has been automatically updated.

Description

Location: Node

Instructions

Not applicable.

Cancelling

Warnings are not cancelled.

6.1.7.8 8207 Calibration expired

Table 55. 8207 Calibration expired

8207 Calibration expired	
Severity:	**Description:**
Warning	

Table 55. 8207 Calibration expired (cont.)

8207 Calibration expired		
Fault reason:	**Instruction:**	**Alarm cancelling:**
The SDH node clock was last calibrated one year ago.	Recalibrate the SDH node clock in the synchronisation window. Check the current synchronisation status before calibration to avoid calibration to a low quality synchronisation source.	Warnings are not cancelled.

6.1.7.9 8130 Fault in memory

Table 56. 8130 Fault in Memory

8130 Fault in Memory		
Severity:	**Description:**	
Major	Location: Node	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The FC Bridge or FC STM-1 unit have a faulty backup.	Reset the node and check if the fault is still displayed. Set FC STM back to factory default settings and reconfigure the settings.	Not applicable.

6.1.7.10 8223 Protection switch

Table 57. 8223 Protection switch

8223 Protection switch		
Severity:	**Description:**	
Warning	Location: CC database	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Protection switch of the STM interfaces (SNC-protection) caused by: 1. the connector, the cable, or the link. 2. a fault somewhere in the network (only some of the VC-12s are cut).	1. Check the connector, the fibre, and the link. 2. Check the signal quality statistics.	Warnings are not cancelled.

6.1.8 Specific alarms for FC STM-1

6.1.8.1 8148 Equipment reset

Table 58. 8148 Equipment reset

8148 Equipment reset		
Severity:	**Description:**	
Warning	Location: unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The unit is starting up again after a power-on or reset.	The unit restarts automatically after power-on or reset.	Not applicable.

6.1.8.2 8149 Forced indication

Table 59. 8149 Forced indication

8149 Forced indication		
Severity:	**Description:**	
Warning	Location: LED	
Fault reason:	**Instruction:**	**Alarm cancelling:**
LED is forced on or off.	Set the LED to normal state in the FXC STM-1 Manager's Forced indications dialogue box.	The forced state is automatically cancelled, after control timeout.

6.1.8.3 8150 Fault in unit

Table 60. 8150 Fault in unit

8150 Fault in unit		
Severity:	**Description:**	
***	Location: Unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Frame alignment hardware fault detected in the unit.	Remove the unit and replace it with new one.	Not applicable.

6.1.8.4 8162 Database full

Table 61. 8162 Database full

8162 Database full		
Severity:	**Description:**	
Warning	Location: Event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded in the database. This happens when the poller (NMS/BSC) is unable to poll the unit and clears the alarm history.	Check that polling is working.	Not applicable.

6.1.9 Specific alarms for FC STM-1 Interface x

6.1.9.1 23 Test mode active

Severity

Major

Fault reason

Laser control state is changed to test shutdown for the period of the control timeout.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS

Consequence: Transmit laser is off.

Instructions

The laser switches back on automatically after a control timeout.

Cancelling

Not applicable.

6.1.9.2 48 Loss of incoming signal

Severity

Critical

Fault reason

Optical input power level is too low.

Description

Location: OS

Consequence: MS-RDI upstream

TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

- Check if the fibre is connected to the optical connector of the FXC STM unit.
- Check if there is a cut or physical damage on the fibre at some point of the fibre link.
- Check that the far-end of the fibre is connected and the far-end device is operational and sending a signal.
- Check if the attenuation of the fibre is too high. High attenuation is caused by long distances (> 40 km), splices, or fibre adapters.

Cancelling

This alarm is cancelled when a signal is received again (input power level above minimum receive sensitivity of -34 dBm).

6.1.9.3 8057 Loss of pointer

Table 62. 8057 Loss of pointer

8057 Loss of pointer		
Severity:	**Description:**	
***	Location: MS/S4 Consequence: S4-RDI upstream TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The AU-4 pointer was not found.	Check for the correct synchronisation of the signal.	This alarm is cancelled as soon as a valid pointer is detected.

6.1.9.4 64 Alarm signal is received

Severity

Major

Fault reason

1. MS-AIS inserted.
2. AU-AIS inserted.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location:

1. MS
2. MS/S4

Consequence:

1. MS-RDI upstream
2. S4-RDI upstream

TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

Check the whole MS signal path to find the reason behind the alarm.

Cancelling

Not applicable.

6.1.9.5 81 Loss of frame alignment

Severity

Critical

Fault reason

Frame alignment word of STM signal not found.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS/RS

Consequence: MS-RDI upstream

TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

This alarm is either caused by bad quality of the STM signal, or due to the fact that the device at the far-end is not sending an STM-1 signal at all.

- Check for correct synchronisation of the signal.
- Check if the wrong type of fibre is in use (FXC STM L.1.1 laser is defined for type G.652 fibre).
- Check if the far-end device is not sending an STM-1 frame at all.
- Check if there is dirt or damage on one of the fibre connector tips.
- Check if the attenuation of the fibre is too high. High attenuation is caused by long distances (>40 km), splices, or fibre adapters.

Cancelling

The alarm is cancelled when the frame alignment of the STM signal is detected again.

6.1.9.6 141 Forced control on

Severity

Critical

Fault reason

1. The laser is forced on.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS

Consequence: Transmit laser is on, even under ALS or Transmitter Fail (TF) conditions.

Instructions

Set the laser control state back to on.

Cancelling

Not applicable.

6.1.9.7 153 Fault in transmitter

Severity

Critical

Fault reason

Monitored transmit power is lower than -7dBm or higher than +3dBm from the Begin of Life value.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS

Consequence: Corresponding optical transmitter is switched off.

Instructions

Replace the unit.

Cancelling

Not applicable.

6.1.9.8 156 Laser power out of range

Severity

Critical

Fault reason

Monitored transmit power is lower than -3dBm or higher than +3dBm from Begin of Life value.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS

Instructions

The lifetime of the laser is nearing its end or the power has dropped due to a laser failure. Replace the unit when performing the next maintenance activities. The laser will not be shut down.

Note that the current estimated lifetime of the laser transceiver is about 300 years. In normal operation, this alarm only occurs due to a faulty laser.

Cancelling

Not applicable.

6.1.9.9 158 Forced laser cut off

Severity

Critical

Fault reason

The user has changed the laser control state to Forced off.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: OS

Consequence: Transmit laser is off.

Instructions

Set the laser control state back to on.

Cancelling

Not applicable.

6.1.9.10 8162 Database full

Table 63. 8162 Database full

8162 Database full		
Severity:	**Description:**	
Warning	Location: Event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded in the database. This happens when the poller (NMS/BSC) is unable to poll the unit and clears the alarm history.	Make sure that polling is working.	Not applicable.

6.1.9.11 8213 Remote Defect Indication (RDI)

Table 64. 8213 Remote Defect Indication (RDI)

8213 Remote Defect Indication (RDI)		
Severity:	**Description:**	
**	Location: MS	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The far-end device generating the MS overhead has detected a defect on the received signal from FXC STM direction (such as loss of signal or loss of frame alignment) and it has inserted MS-RDI bit in direction to FXC STM.	Check for open alarms at the far-end device and remove the cause of the alarms.	MS-RDI is cancelled at the far-end device, which is generating the MS overhead.

6.1.9.12 214 Signal degraded

Severity

Major

Fault reason

The threshold for signal degraded was crossed based on BIP-24 in MSOH B2 bytes.

Description

Location: MS

Instructions

This alarm is caused by bad quality of the STM signal.

- Check if a wrong type of fibre is in use (FXC STM L.1.1 laser is defined for type G.652 fibre).
- Check if there is dirt or damage on one of the fibre connector tips.
- Check if the attenuation of the fibre is too high. High attenuation is caused by long distances (> 40 km), splices, or fibre adapters.

Cancelling

The alarm is cancelled when the number of bit errors falls below the threshold specified in ETSI/ITU standard for the signal degraded alarm.

6.1.9.13 215 Trace identifier mismatch

Severity

Critical

Fault reason

Received RS-TTI and Expected RS-TTI do not match. (Mismatch monitoring for RS needs to be activated to receive this alarm.)

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: RS

Consequence: MS-RDI upstream

TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

- Check if the correct device is connected at the far-end of the fibre.
- Check if the device at the far-end of the fibre link inserts the transmitted TTI as expected by FXC STM.
- Check if the expected TTI string is configured correctly to the FXC STM device.

Cancelling

The alarm is cancelled when the expected TTI matches the received TTI, or when mismatch monitoring is disabled.

6.1.10 Specific alarms for FC STM-1 Interface S4 x

6.1.10.1 57 Loss of pointer

Severity

Critical

Fault reason

TU-Pointer is not found.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: TU12_K.L.M

K.L.M specifies one of the 63 TU-12s within the STM-1 signal according to EN 300 417-1-1 (for example, TU12_3.7.3).

Consequence: TU12-AIS downstream.

Instructions

Check the synchronisation of FXC STM and the SDH network. Check if VC-4 contains TUG structure.

Cancelling

The alarm is cancelled when the pointer is detected again.

6.1.10.2 64 Alarm signal is received

Severity

Major

Fault reason

TU-AIS is inserted.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: TU12_K.L.M

K.L.M specifies one of the 63 TU-12s within the STM-1 signal according to EN 300 417-1-1 (for example, TU12_3.7.3).

Instructions

TU-AIS was received as a consequent action of a defect in the TU-12 path. Check TU-12 path for defects.

Cancelling

The alarm is cancelled when the reason behind TU-AIS insertion at the far-end is removed.

6.1.10.3 82 Loss of multiframe alignment

Severity

Critical

Fault reason

TU-Multiframe in H4 byte is not found.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: S4/TUG

Consequence: TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

Check if the VC-4 contains TUG structure.

Cancelling

Not applicable.

6.1.10.4 8162 Database full

Table 65. 8162 Database full

8162 Database full		
Severity:	**Description:**	
Warning	Location: Event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded in the database. This happens when the poller (NMS/BSC) is unable to poll the unit and clears the alarm history.	Make sure that polling is working.	Not applicable.

6.1.10.5 213 Remote Defect Indication (RDI)

Severity

Major

Fault reason

S4-RDI bit is set.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: S4

Instructions

The far-end device generating the VC-4 has detected a defect on the received signal from FXC STM direction and it has inserted S4-RDI in direction to FXC STM. Check for open alarms at the far-end device and remove the reason behind the alarms.

Cancelling

The alarm is cancelled when the RDI bit is no longer received from the far-end.

6.1.10.6 214 Signal degraded

Severity

Major

Fault reason

The number of block errors indicated by the B3 byte has crossed the threshold for the signal degraded alarm.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: S4

Instructions

Check the quality of the whole VC-4 path to determine the source of the bit errors and remove the source of the errors.

Cancelling

The alarm is cancelled when the number of block errors falls below the threshold specified in ETSI/ITU standard for the signal degraded alarm.

6.1.10.7 215 Trace identifier mismatch

Severity

Critical

Fault reason

Received VC-4 path label is 0x00 (C2 byte).

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: S4

Consequence: S4-RDI upstream.

TU AIS for pass through TU12s and 2M AIS for dropped TU12s downstream.

Instructions

The source of the VC-4 path signal is out of service, or the VC-4 was not cross-connected correctly in an intermediate node along the VC-4 path. Check the far-end device, which should generate the VC-4 and intermediate nodes for correct cross-connection settings.

Cancelling

The alarm is cancelled when the expected TTI matches the received TTI or when mismatch monitoring is disabled.

6.1.10.8 216 Unequipped signal

Severity

Critical

Fault reason

Received VC-4 path label is 0x00.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: S4

Instructions

The source of the VC-4 path signals is out of service. There is no content inserted to the VC-4 at the far-end VC-4 path.

Cancelling

The alarm is cancelled when the content is inserted into the VC-4 path at the far-end.

6.1.11 Specific alarms for FC Bridge PDH

6.1.11.1 8022 Loop to equipment

Table 66. 8022 Loop to equipment

8022 Loop to equipment		
Severity:	**Description:**	
**	Location: FXC Bridge; C12/D-bus.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
2M signal coming back from the backplane bus (D-bus or cross-connection bus), it is looped back to the backplane.	The loop is disabled after the control timeout period expires.	Not applicable.

6.1.11.2 8032 Loss of outgoing signal

Table 67. 8032 Loss of outgoing signal

8032 Loss of outgoing signal		
Severity:	**Description:**	
***	Location: FXC Bridge Unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The test signal used during a cross-connection test has been lost.	Alarm is active as long as the test is ongoing.	The alarm is automatically cancelled after the test has been completed.

6.1.11.3 150 Fault in unit

Severity

Critical

Fault reason

HW fault in the unit was detected.

Description

Location: FC Bridge, SPI link

Instructions

Remove the unit and replace it with a new one.

Cancelling

Not applicable.

6.1.11.4 25 Test generator on

Severity

Major

Fault reason

A cross-connection test was initiated and is ongoing.

Description

Location: FC Bridge unit

Instructions

The test generator is automatically switched off after the test is performed.

Cancelling

Not applicable.

6.1.12 Specific alarms for FC Bridge SDH

6.1.12.1 8022 Loop to equipment

Table 68. 8022 Loop to equipment

8022 Loop to equipment		
Severity:	**Description:**	
**	Location: PDH channel y Consequence: 2M-AIS downstream	
Fault reason:	**Instruction:**	**Alarm cancelling:**
2M signal coming from SDH is looped back to SDH.	The loop is disabled after the control timeout period expires.	Not applicable.

6.1.12.2 8047 Payload mismatch

Table 69. 8047 Payload mismatch

8047 Payload mismatch		
Severity:	**Description:**	
***	Location: SDH channel y Consequence: S12-RDI upstream and 2M-AIS downstream.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Received VC-12 path label and expected VC-12 path label do not match.	Check if the correct signal structure is mapped at the far-end of the VC-12 path. FXC STM supports both byte synchronous (2048 kbit/s) and asynchronous mapping.	The alarm is cancelled when a supported signal structure is mapped at the far-end of the VC-12 path.

6.1.12.3 64 Alarm signal is received

Severity

Major

Fault reason

2M AIS is received.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: PDH channel y

Consequence: A bit stream upstream and 2M-AIS downstream.

Instructions

2M AIS was received as a consequent action of a defect at the far-end of the 2M signal. Check the source of the 2M signal for defects.

Cancelling

The alarm is cancelled when the reason behind 2M AIS insertion at the far-end is removed.

6.1.12.4 81 Loss of frame alignment

Severity

Critical

Fault reason

Frame alignment is missing.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: PDH channel y

Consequence: A-Bit set upstream and 2M-AIS downstream.

Instructions

FXC STM could not detect the frame alignment of the 2M signal. Check if the device generating the 2M signal generates the same frame format as FXC STM. This can be either double frame without CRC-4 or multiframe with CRC-4.

Cancelling

The alarm is cancelled when the frame alignment is detected again.

6.1.12.5 96 Excessive error rate

Severity

Critical

Fault reason

Frame alignment word error rate is high.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: PDH channel y

Consequence: A-Bit set upstream and 2M-AIS downstream.

Instructions

The number of errored basic frame alignment words has crossed the threshold for this alarm. Check the quality of the whole path of the 2M signal to find the source of the bit errors and remove it.

Cancelling

The alarm is cancelled when the number of errored frame alignment words falls below the threshold of this alarm.

6.1.12.6 8148 Equipment reset

Table 70. 8148 Equipment reset

8148 Equipment reset		
Severity:	**Description:**	
Warning	Location: Unit	
Fault reason:	**Instruction:**	**Alarm cancelling:**
The unit is starting up again after a power-on or reset.	The unit restarts automatically after power-on or reset.	Warnings are not cancelled.

6.1.12.7 8162 Database full

Table 71. 8162 Database full

8162 Database full		
Severity:	**Description:**	
Warning	Location: Event history	
Fault reason:	**Instruction:**	**Alarm cancelling:**
Fault management event history database is full. New events are not recorded into the database. This happens when the poller (NMS/BSC) is unable to poll the unit and clears the alarm history.	Make sure that polling is working.	Not applicable.

6.1.12.8 213 Remote defect indication (RDI)

Severity

Major

Fault reason

1. S12 RDI bit is set.
2. A-Bit is set.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location:

1. SDH channel y.
2. PDH channel y.

Instructions

The far-end device generating the VC-12 has detected a defect on the receive signal from FXC STM direction and it has inserted S12-RDI in direction to FXC STM. Check for open alarms at the far-end device and remove the cause of the alarms.

Cancelling

The alarm is cancelled when the RDI bit is no longer received from the far-end.

6.1.12.9 214 Signal degraded

Severity

Major

Fault reason

The number of block errors indicated by the V5 byte has crossed the threshold for the signal degraded alarm.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location:

1. SDH channel y.
2. PDH channel y.

Instructions

Check the quality of the whole VC-12 path to find the source of the bit errors and remove the source of the errors.

Cancelling

The alarm is cancelled when the number of bit errors falls below the alarm threshold.

6.1.12.10 215 Trace identifier mismatch

Severity

Critical

Fault reason

The expected SDH-PDH channel TTI and the received TTI do not match. Mismatch monitoring for the channel needs to be activated to receive this alarm.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: SDH channel y

Consequence: S12-RDI upstream and TU12-AIS downstream.

Instructions

Not applicable.

Cancelling

Not applicable.

6.1.12.11 216 Unequipped signal

Severity

Critical

Fault reason

Received VC-12 path label is 0x00.

Description

Tip

This alarm is masked if alarm monitoring for the STM-1 interface x is off.

Location: SDH channel y.

Consequence: S12-RDI upstream and TU12-AIS downstream.

Instructions

The source of the VC-12 path signals is out of service, or the VC-12 was not cross-connected correctly in an intermediate node along the VC-12 path. Check if the VC-12 at the far-end is cross-connected to the correct VC-4 and check the location at the far-end.

Cancelling

The alarm is cancelled when the VC-12 path is taken into service at the far-end again.

6.2 Trouble management of LMU alarms

6.2.1 8003 Loss of remote power supply

Table 72. 8003 Loss of remote power supply

8003 Loss of remote power supply	
Severity:	**Description:**
***	

Table 72. 8003 Loss of remote power supply (cont.)

8003 Loss of remote power supply		
Fault reason:	**Instruction:**	**Alarm cancelling:**
1. Power has either exceeded normal limit or is below normal limit. LMUB will be reset. 2. The fuse-link has blown due to excessive current.	1. If power has either exceeded normal limit or is below normal limit: • Check the mains supply. • Check the external AC/DC power supply (if used). 2. If the fuse-link has blown due to excessive current: • Replace the blown fuse-link extension.	Do not cancel the alarm. The system cancels the alarm automatically. **Note** If the voltage drop is very fast or the fuse-link blows, LMUB does not have enough time to send the 8003 alarm. In that case, alarms 7210/7860 NO CONNECTION TO TRANSMISSION UNIT and 8202 LOSS OF SUPERVISION CONNECTION are raised at the BTS, BSC, or NetAct.

6.2.2 8048 Loss of incoming signal (GPS fix lost)

Table 73. 8048 Loss of incoming signal (GPS fix lost)

8048 Loss of incoming signal (GPS fix lost)		
Severity:	**Description:**	
***		
Fault reason:	**Instruction:**	**Alarm cancelling:**
LMUB GPS signal/fix is lost. The clock outputs will stop after a timeout. The default timeout is 1 hour.	See *GPS fix is lost occasionally*, *GPS fix is lost permanently,* and *Displaying Constellation Log* in documents *Maintaining and Troubleshooting Location Measurement Unit (LMUB)* and *Using Location Measurement Unit (LMUB) Manager* in Nokia Siemens Networks Location Measurement Unit (LMUB) documentation. **Note** If the GPS fix is recovered and the alarm is cancelled, it may take up to 15 minutes for LMUB to reactivate the clock outputs.	Do not cancel the alarm. The system cancels the alarm automatically.

6.2.3 8145 Temperature alarm

Table 74. 8145 Temperature alarm

8145 Temperature alarm		
Severity:	**Description:**	
**		
Fault reason:	**Instruction:**	**Alarm cancelling:**
Temperature is outside of normal range.	See *Operating temperature in LMUB is too low* and *Operating temperature in LMUB is too high* in document *Maintaining and Troubleshooting Location Measurement Unit (LMUB)* in Nokia Siemens Networks Location Measurement Unit (LMUB) documentation.	Do not cancel the alarm. The system cancels the alarm automatically.

6.2.4 8148 Equipment reset

Table 75. 8148 Equipment reset

8148 Equipment reset		
Severity:	**Description:**	
*		
Fault reason:	**Instruction:**	**Alarm cancelling:**
Reset occurred. LMUB has just started up after reset.	No actions required.	Not applicable.

6.2.5 8165 Q1 real time lost

Table 76. 8165 Q1 real time lost

8165 Q1 real time lost	
Severity:	**Description:**
**	

Table 76. 8165 Q1 real time lost (cont.)

8165 Q1 real time lost		
Fault reason:	**Instruction:**	**Alarm cancelling:**
Q1 real time has been lost.	No actions required.	Do not cancel the alarm. The system cancels the alarm automatically after Q1 real time has been updated.

6.2.6 8184 Q1 real time update

Table 77. 8184 Q1 real time update

8184 Q1 real time update		
Severity:	**Description:**	
*		
Fault reason:	**Instruction:**	**Alarm cancelling:**
Q1 real time has been updated to LMUB.	No actions required.	Not applicable.

6.2.7 8240 Active alarm point (self test failure)

Table 78. 8240 Active alarm point (self test failure)

8240 Active alarm point (self test failure)		
Severity:	**Description:**	
**		
Fault reason:	**Instruction:**	**Alarm cancelling:**

Table 78. 8240 Active alarm point (self test failure) (cont.)

8240 Active alarm point (self test failure)		
When the alarm is raised, LMUB internal self-tests status in LMUB Manager is shown as Not OK. The alarm is raised if: • LMUB software is faulty • LMUB is faulty	1. Reset LMUB. Update the latest software from NOLS. 2. If the LMUB internal self-tests status is still Not OK, replace the unit. See *LMUB internal self-tests status is Not OK* in document *Maintaining and Troubleshooting Location Measurement Unit (LMUB)* in Nokia Siemens Networks Location Measurement Unit (LMUB) documentation.	Alarm needs to be cancelled from the BSC.

6.2.8 8272 Position not locked

Table 79. 8272 Position not locked

8272 Position not locked		
Severity:	**Description:**	
*	The alarm is raised if GPS position is not locked because GPS self survey is ongoing.	
Fault reason:	**Instruction:**	**Alarm cancelling:**
LMU GPS position is not locked. Minimum of 4 satellites signals are needed to achieve GPS FIX. GPS position survey takes about 24 hours with good satellite view.	1. If self survey is not completed in reasonable time (may take 1 to 5 days), first check the GPS antenna installation.	Do not cancel the alarm. The system cancels the alarm automatically.

6.3 Trouble management of other transmission alarms

6.3.1 8202 Loss of supervision connection

Table 80. 8202 Loss of supervision connection

8202 Loss of supervision connection			
Severity:	**Object affected:**	**Object state:**	**Module/Unit:**
***	TRE	Enabled	ESMA
Fault reason:	**Instruction:**		**Alarm cancelling:**
Field not used.	Q1 device does not respond to poll command sent by the polling master (BTS/BSC). 1. Check that Q1 baud rate and Q1 address of the Q1 device matches with what is configured at the BSC. 2. Check if alarm 7601 "Q1 bus faulty" is active. Check that the cable is correctly mated with the ESMA and Q1 device. Check also condition of the Q1 cable connectors. 3. Check that Q1 switches are set to enable polling master (BTS/BSC) to access the microprocessor (up) of the Q1 device. 4. Replace ESMA.		Automatic.

7 Troubleshooting MetroSite EDGE BTS

7.1 Overview of troubleshooting the BTS

Before you start, please review *Alarms list for MetroSite EDGE BTS alarms*.

For additional information on the BTS status when troubleshooting, use a mobile phone to contact the Base Station Controller (BSC) personnel.

The BTS Manager windows, Supervision, BTS Events, and Alarms, can help you identify the problem.

In the chapters to follow, BTS troubleshooting is divided into six subcategories:

- *Troubleshooting commissioning*
- *Troubleshooting BTS Manager connection*
- *Troubleshooting electrical power*
- *Troubleshooting transmission unit operation*
- *Troubleshooting fan units*
- *Troubleshooting TRX test failures with BTS Manager*

All damages, failures, or faults must be reported to Nokia Siemens Networks using the Failure Report Form (FRF) provided by your local Nokia Siemens Networks representative.

Note

You can save the alarm information to a log file on your laptop with BTS Manager software. Remember to attach the alarm log file with the Failure Report Form (FRF).

For more information on possible faults and appropriate corrective actions, see the **Generic Failure Status Report** document in the SW Release Documentation. For transmission unit failures, see the **Monitoring MetroSite EDGE BTS** document in the latest Product Documentation set.

7.2 Troubleshooting commissioning

Purpose

In the case of a failure in any part of the whole commissioning procedure, an alarm will appear in the alarm window (see figure ' BTS Manager desktop showing the alarms in the Alarms window' in chapter *Identifying faulty units*). Also, you may check the state where the failure occurred from the commissioning report. The report only stores whether commissioning was successful or not.

MetroHub Manager may be used for checking the transmission-related alarms.

Summary

Fault - The commissioning of MetroSite EDGE BTS fails.

Steps

1. Determine the cause and corrective action.

Table 81. Troubleshooting commissioning

Potential cause	Corrective action
The RX and TX cables are not properly connected causing TRX test to fail	Check that the RX and TX cables are properly connected to the failing TRX.
The Abis cables are not properly connected (transmission unit LED is not green)	Connect the Abis cables properly.

Table 81. Troubleshooting commissioning (cont.)

Potential cause	Corrective action
The pre-configuration fails at the BSC (for example, the BCF and TRX objects were not created)	Create the BCF, BTS, and TRX objects at the BSC.
The oven oscillator has not yet warmed up causing the BCF to remain in the 'Configuring' state	Wait until the oven oscillator has warmed up.
The TRXs are not unlocked at the BSC (as a result of this the TRXs do not enter the 'Supervisory' state)	Unlock the TRXs at the BSC.
The Lapd links are disabled at the BSC/ ET	Ensure that the Lapd links are enabled at the BSC/ET.

2. Report damage, failure, or fault.

Further information

Note

Before starting to re-commission the BTS, first run the *Undo Commissioning* procedure in the BTS Commissioning Wizard.

7.3 Troubleshooting BTS Manager connection

Summary

Fault - Cannot connect to BTS Manager

Steps

1. Determine the cause and corrective action.

Table 82. Troubleshooting BTS Manager connection

Potential cause	Corrective action
Wrong BTS Manager port setting (COM1, COM2)	Correct the settings.

Table 82. Troubleshooting BTS Manager connection (cont.)

Potential cause	Corrective action
LMP cable broken or not properly connected	• Check the connection. • Replace or repair the cable.
Old or incorrectly installed BTS Manager software	• Use the same or a newer version of BTS Manager SW when compared to BTS SW. • (Re)install BTS Manager SW.

2. Report damage, failure, or fault.

7.4 Troubleshooting electrical power

Summary

Fault - No power to the BTS

Steps

1. Determine the cause and corrective action.

Table 83. Troubleshooting electrical power

Potential cause	Corrective action
Power supply unit is in STAND BY mode	Turn the switch to the ON position.
Site mains power supply fault (power supply LED is OFF)	• Replace the power supply unit, if necessary. • Check the site mains power source and fuses.
Defective power cable	Replace the power cable. If the AC connector inside the cabinet is faulty, replace the faulty AC connector with spare part 083728A. Replacement instructions are delivered with the connector.
Cold-start function activates (power supply LED is YELLOW)	Close the door to allow the units to warm up to a temperature of -5° C (20° F).
Defective power supply unit (LED is RED may indicate the unit is overheated)	Replace the power supply unit.

Table 83. Troubleshooting electrical power (cont.)

Potential cause	Corrective action
Short in one of the plug-in units	• Pull the units out one by one until the power returns. • Return the units one by one and replace the faulty unit(s).
Wrong power supply type	Replace power supply to correct type.

2. Report damage, failure, or fault.

7.5 Troubleshooting transmission unit operation

Summary

Fault - No transmission connection to the BSC

Steps

1. Determine the cause and corrective action.

Table 84. Troubleshooting Transmission unit operation

Potential cause	Corrective action
Abis cable not connected (LED is RED)	Check the connection of the Abis cable on the Transmission unit and at the BSC.
Defective Abis cable (LED is RED)	Repair or replace the cable.
Line interface disconnected (LED is RED)	• Connect a jumper cable from the RX connector of each transmission interface to its RS connector. • If the GREEN LED is Steady, the line interface is OK. Otherwise, replace the Transmission unit.
Incorrect transmission card setting (LED is GREEN or YELLOW)	• Check the alarm with the Transmission Manager software. • Check the cross-connection and ensure the interface is enabled. • Check the line interface settings.
Master Transmission unit is not in slot 1	Check the location of the transmission units.
Defective Transmission unit (LED is RED)	Replace the Transmission unit.

2. **Report damage, failure, or fault.**

7.6 Troubleshooting Fan units

Summary

Fault – The fan is not rotating.

Steps

1. **Determine the cause and corrective action.**

Table 85. Troubleshooting Fan units

Potential cause	Corrective action
Fan cable is not properly connected	Verify the proper cable connection.
The outdoor cabinet electronics module cable is not properly connected to the cabinet fan	Verify the proper cable connection
Fan rotor blocked	Clear rotor.
Door switch is faulty or not engaged (cabinet fan)	• Replace switch. • Engage door switch button.

2. **Report damage, failure, or fault.**

7.7 Troubleshooting TRX Test failures with BTS Manager

Summary

Fault - TRX Test fails when test is executed locally or remotely with BTS Manager.

Steps

1. **Determine the cause in TRX Test Result column and corrective action.**

Table 86. Troubleshooting TRX Test failures

TRX Test Result	Corrective action
"The transmitted power is too low"	• Run the TRX Test again.
"Faulty baseband creates bit error ratio >0%"	• Run the TRX Test again. • Replace faulty TRXx.
"Invalid CH configuration"	• Run the TRX Test again to non BCCH/ SDCCH/GP TS. • Replace faulty TRXx.
"RX cabling is faulty or missing"	• Replace faulty cable.
"High Bit Error in RF loop detected"	• Run the TRX Test again. • Check for high RF interference levels in RX antenna input.
"Invalid TRX state"	• Check the TRX State from the BTS Manager. The TRX state should be CONFIGURING or SUPERVISORY. • Run the TRX Test again. Note: TRX test has to be finished before re-run.
"Unable to measure TX power level"	• Run the TRX Test again. • If the test persistently fails, replace TRXx unit.
"The timeslot is already in use"	Run the TRX Test again. Note: The tested TS and its offset TS (tested TS minus 3 TSs) both have to be free before the TRX test can be started.
"Starting TRX Test failed. Invalid HOP Type.." Note: In prior BTS Manager 4.1, the result message was "TRX test failed, can't get response from BTS software".	Check the hopping mode of the TRX. Note: TRX test cannot be done to BB hop or Antenna hopping sector.

2. Report damage, failure, or fault.

8 Troubleshooting BTS Transmission Hub

8.1 Using forced indications to test the FC STM transmission unit LEDs

Purpose

The FXC STM-1 and FXC Bridge cards have three-colour unit status LEDs. In the **Forced Indications** windows, you can test the LEDs by forcing them into different states.

Steps

1. **Click FXC STM-1 → Forced Indications to open the FXC STM window, or FXC Bridge → Forced Indications to open the FXC Bridge window.**

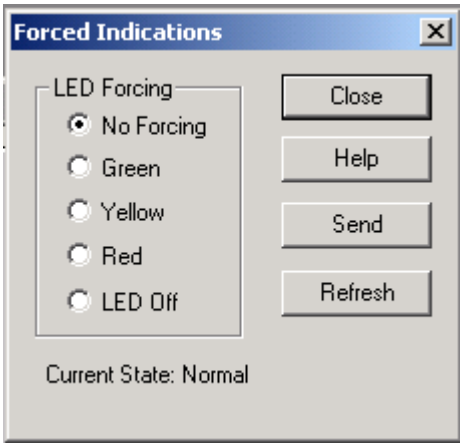


Figure 11. FXC STM-1 or FXC Bridge Forced Indications

2. **View the Current State of the LED. Usually, this is Normal or No Forcing.**

3. **Select the state you want to force the LED to (No Forcing, Green, Yellow, Red, or LED Off).**

4. **Click Send.**

5. **Click Refresh to read the current state of the LED from the unit.**

8.2 Using timeslot monitoring to locate faults

Purpose

The status of MCB/LCB bits gives you information on the synchronisation in the loop network. The status of these bits can be monitored in the **Loop Bits** tab of the **Synchronization** dialogue box. Only the received MCB/LCB bits are shown.

Steps

1. **Connect to the node or open a file.**

2. **Select Configuration → Synchronization.**

3. **Select the Loop Bits tab.**

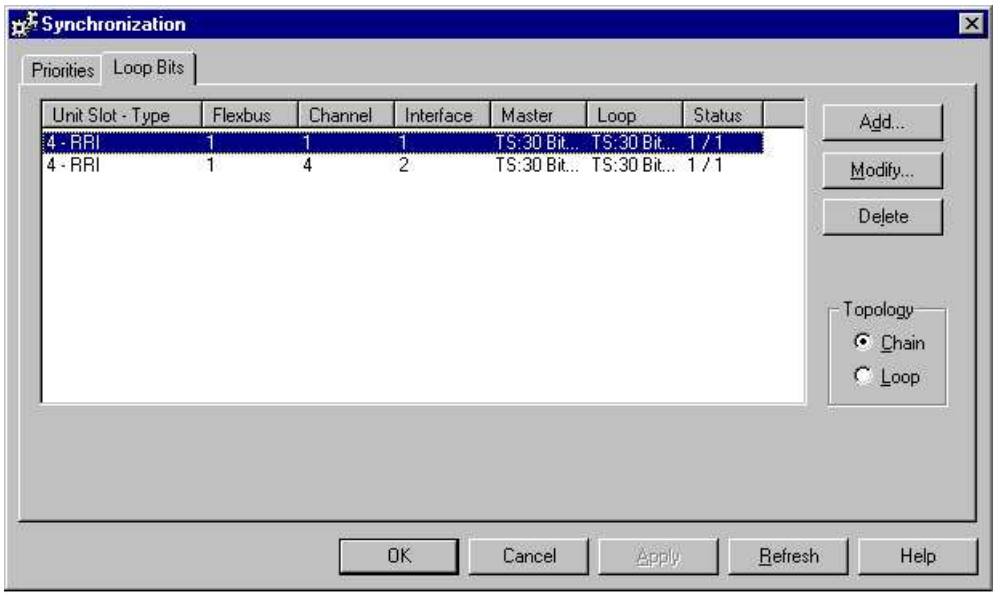


Figure 12. MCB/LCB status in the Synchronization dialogue box

4. Locate any faults using the MCB/LCB bit statuses.

Locate faults using the MCB/LCB bit statuses. In all good situations, the incoming master bit is 0. If the master bit is 1, it indicates that the incoming signal from that direction is not synchronised from the loop master. The loop bit is used to detect any breaks or loopbacks in the synchronisation chain.

Note that only the received MCB/LCB bits are shown.

Table 87. MCB/LCB bit statuses

MCB	LCB	Conditions in the sending node (B), based on receiving MCB/LCB bits in the receiving node (A)
0	0	The connection from the loop master to node B is acceptable. Node B is getting its synchronisation from the loop master. Node A can use this interface as a synchronisation source.
0	1	Node B gets its synchronisation from the loop master. Node A should not use this as its synchronisation source, because the synchronisation is coming from node A direction in order to prevent a synchronisation loop back.

Table 87. MCB/LCB bit statuses (cont.)

MCB	LCB	Conditions in the sending node (B), based on receiving MCB/LCB bits in the receiving node (A)
1	0	Not applicable.
1	1	The connection from the loop master to node B is not acceptable. Node A should not use this interface as its synchronisation source.

8.3 Using MCB/LCB bits to locate faults

Purpose

The status of MCB/LCB bits gives you information on the synchronisation in the loop network. The status of these bits can be monitored in the **Loop Bits** tab of the **Synchronization** dialogue box. Only the received MCB/LCB bits are shown.

Steps

1. **Connect to the node or open a file.**
2. **Select Configuration → Synchronization.**
3. **Select the Loop Bits tab.**

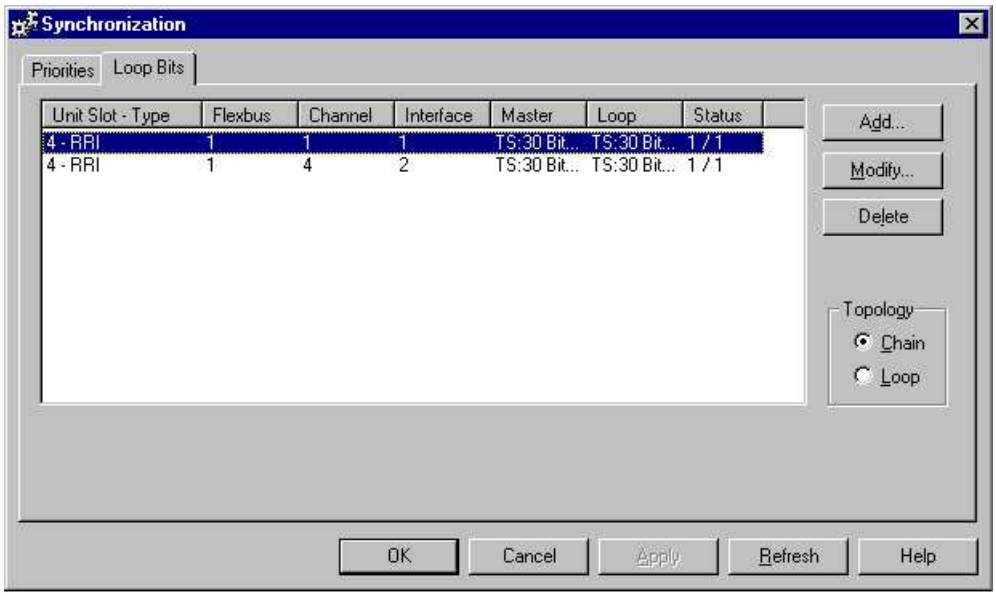


Figure 13. MCB/LCB status in the Synchronization dialogue box

4. Locate any faults using the MCB/LCB bit statuses.

Locate faults using the MCB/LCB bit statuses. In all good situations, the incoming master bit is 0. If the master bit is 1, it indicates that the incoming signal from that direction is not synchronised from the loop master. The loop bit is used to detect any breaks or loopbacks in the synchronisation chain.

Note that only the received MCB/LCB bits are shown.

Table 88. MCB/LCB bit statuses

MCB	LCB	Conditions in the sending node (B), based on receiving MCB/LCB bits in the receiving node (A)
0	0	The connection from the loop master to node B is acceptable. Node B is getting its synchronisation from the loop master. Node A can use this interface as a synchronisation source.
0	1	Node B gets its synchronisation from the loop master. Node A should not use this as its synchronisation source, because the synchronisation is coming from node A direction in order to prevent a synchronisation loop back.

Table 88. MCB/LCB bit statuses (cont.)

MCB	LCB	Conditions in the sending node (B), based on receiving MCB/LCB bits in the receiving node (A)
1	0	Not applicable.
1	1	The connection from the loop master to node B is not acceptable. Node A should not use this interface as its synchronisation source.

8.4 Using the condition bits of protected cross-connections to locate faults

Purpose

Condition bits of protected cross-connections give information on the status of the protected/protecting cross-connection directions. If a received pilot bit is '1', the connection is faulty, if '0', the connection is functioning. The status information is shown in the **Condition Information** frame of the **Cross-connection Properties** dialogue box.

Steps

1. **Connect to the node.**
2. **Select Configuration → Cross Connections.**

   The **Cross-connections** window opens.

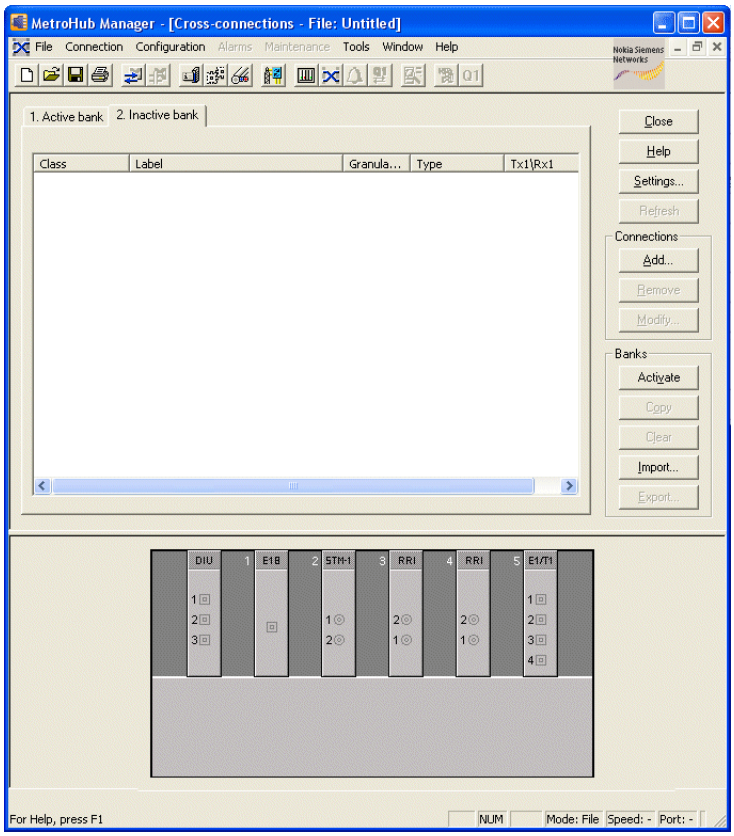


Figure 14. The Cross-connections window

3. **Click the Settings button in the Cross-connections window.**

4. **Select Condition Type, Condition 1, and Condition 2.**

5. **Click OK.**

6. **Select a cross-connection, right click on it, and click Properties to access the Cross-connection Properties dialogue box.**

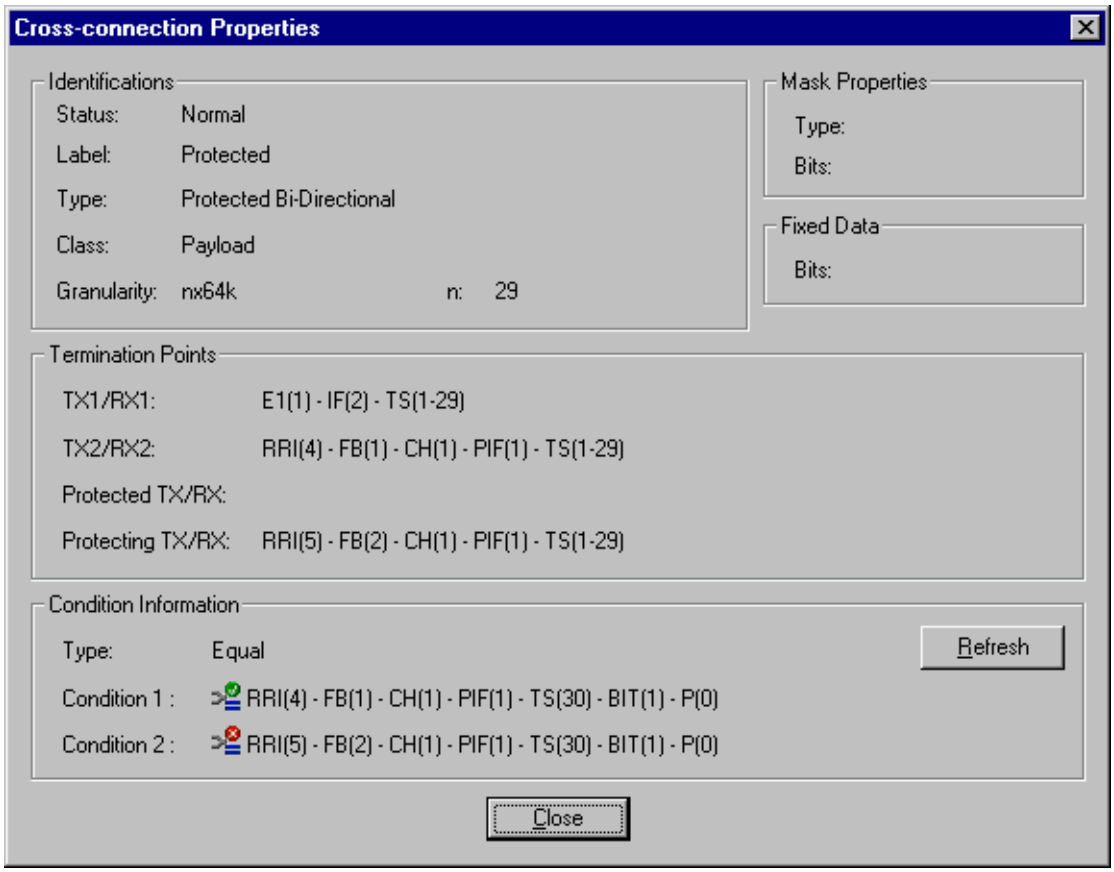


Figure 15. Condition information in the Cross-connection Properties dialogue box

7. Assess if the connection is faulty by viewing the condition bits of the protected cross-connections, in the Condition Information frame.

View the condition bits of the protected cross-connections in the **Condition Information** frame. If a received pilot bit is 1, the connection is faulty. If a received pilot bit is 0, the connection is functioning.

8.5 Using pending cross-connections to locate faults

Purpose

If a traffic cut has occurred, and there is an active pending cross-connections alarm ('*20 Blocked from use*'), check the status of the cross-connections, especially if the node settings have been changed.

Steps

1. **Connect to the node.**
2. **Select Configuration → Cross-connections.**
3. **View the pending cross-connections.**

   Pending cross-connections are displayed in the **Cross-connections** window with the colour red. Cross-connections are in pending state when something is preventing them from working normally. See the following diagram.

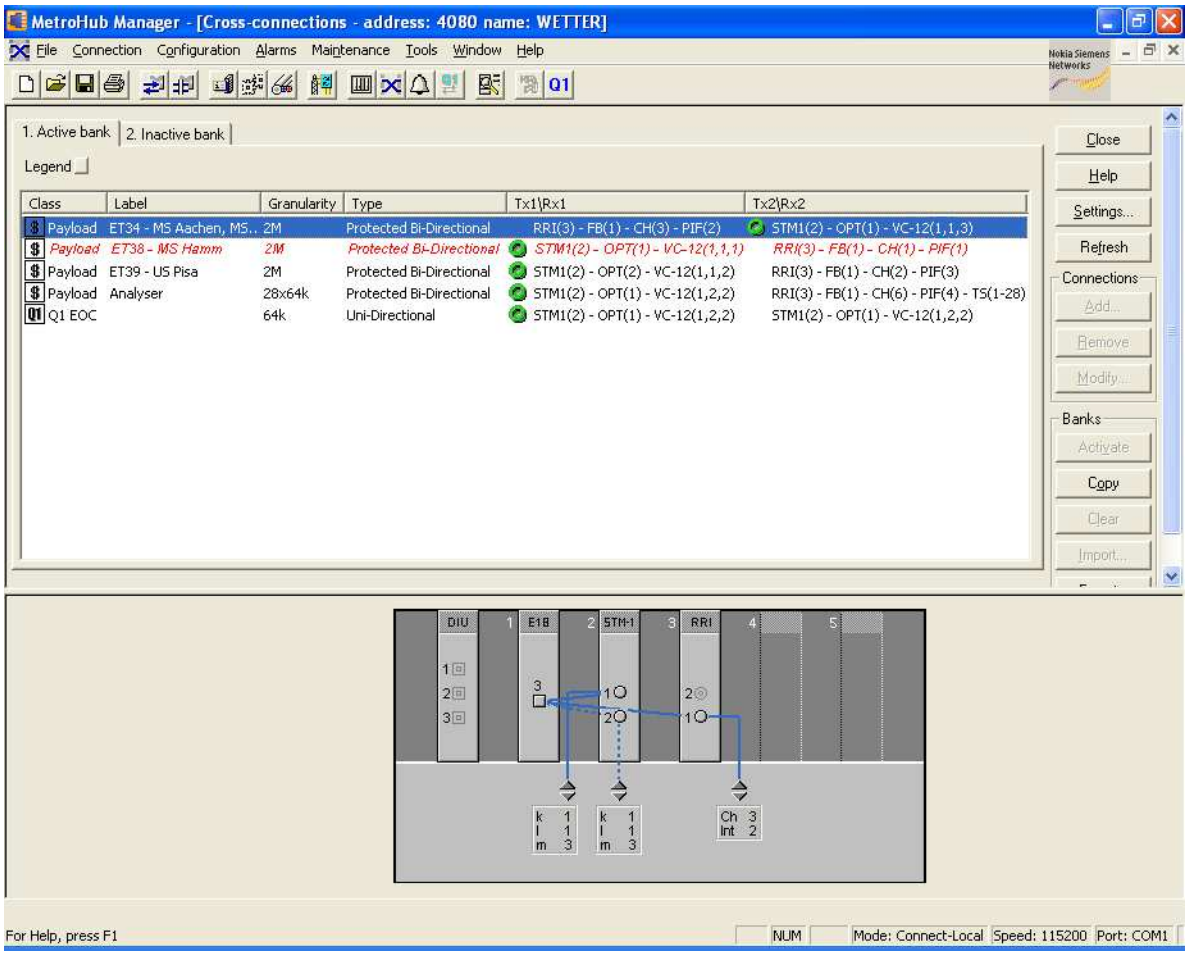


Figure 16. Pending cross-connections because of disabled interface 1 of the FXC E1/T1 unit in slot 2

Reasons for the pending state can be that one end (termination point) of the cross-connection is an interface that is not in use. Another reason is that it is not operational, because of an active alarm. The responsible end (termination point) for each pending cross-connection is shown by the icon next to the termination point. Click the **Legend** button to see an explanation of the symbols, as shown in the figure below.

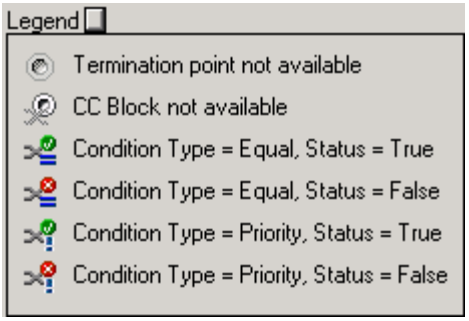


Figure 17. Symbols used in the cross-connections window

Once the reason for the pending state is removed, the cross-connection is reactivated automatically.

Tip

To see the actual status of the cross-connections, you need to refresh the **Cross-connections** view.

8.6 Using loopbacks to test the transmission node

8.6.1 Overview of using loopbacks to test the transmission node

Purpose

The units contain several loopback points that you can set to test the node. These loopbacks are accessed through the FXC E1/(T1) Manager, the FXC RRI Manager, or the FXC STM-1 Manager (standalone or embedded in the MetroHub Manager or UltraSite BTS Hub Manager).

The loopback status can change without the user changing it, for example, when the timeout has been reached (alarms *21 Loop to interface* and *22 Loop to equipment*).

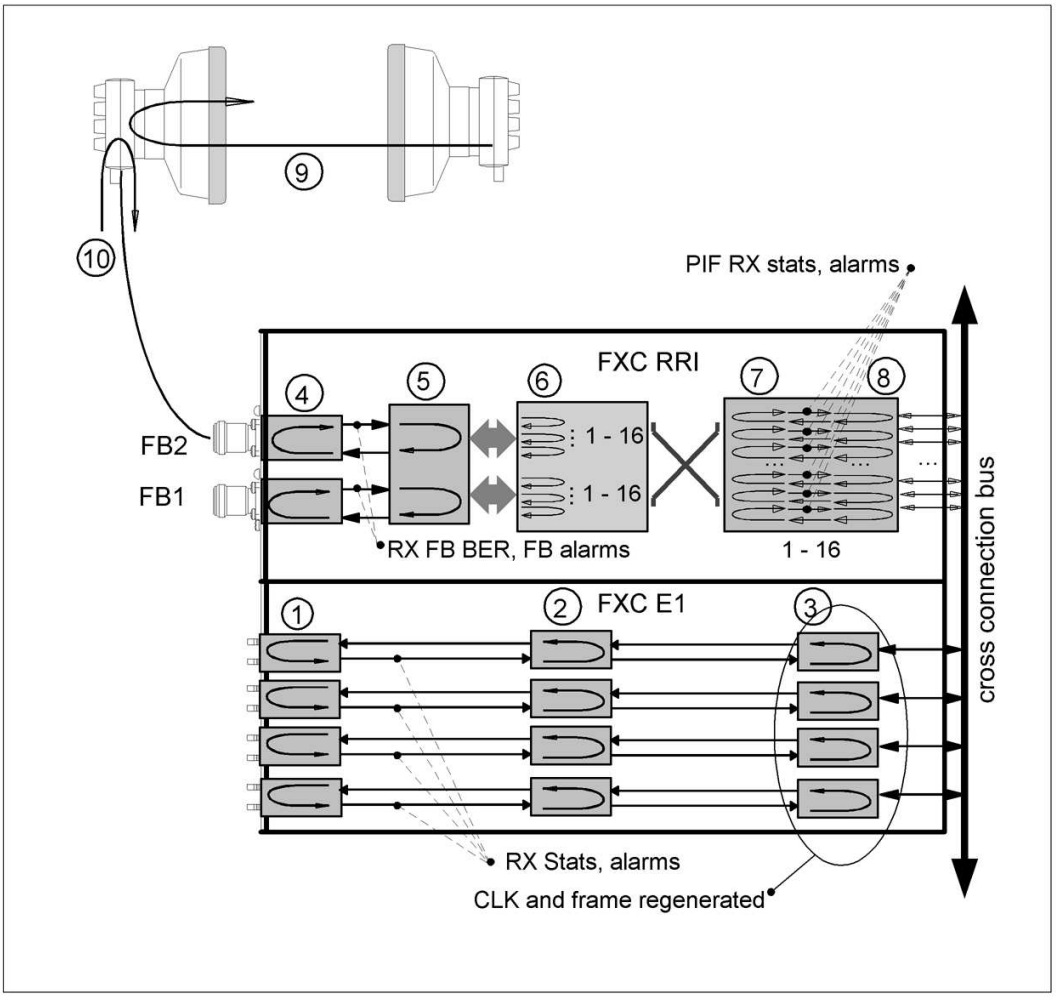


Figure 18. Loopbacks in FXC E1 unit, FXC RRI unit, FlexiHopper and MetroHopper

The following loops are supported by the FXC E1 unit, FXC RRI unit, FlexiHopper, and MetroHopper:

1. Loop to equipment
2. Loop to interface (line)
3. Loop to interface (payload)
4. Flexbus loop to equipment
5. Flexbus loop to interface

6. Flexbus channel loop to interface
7. Platform interface loop to equipment
8. Platform interface loop to interface
9. Outdoor unit loop to interface
10. Outdoor unit loop to equipment

Steps

1. Configure the unit loopback settings as required.

Configure the unit loopback settings as required. See the following sections for details:

- *Using loopbacks to test the FXC E1(T1) transmission unit*
- *Using loopbacks to test the FXC RRI transmission unit*
- *Using loopbacks to test the FXC STM-1 transmission unit*

2. Define the control timeout, which sets how long the loops are active.

When the defined time has expired, the loops are automatically removed. The control timeout is set in the **Configuration → Service Interface** menu in the FXC units and node managers.

8.6.2 Using loopbacks to test the FXC E1(/T1) transmission unit

Purpose

Three integrated loopback tests are available in the FXC E1(/T1) units for testing and diagnostics purposes. You can verify the operation of the signal path with the help of an external BER analyser equipment.

Steps

1. Click FXC E1/T1 → Interface Loops to open the Interface Loops dialogue box.

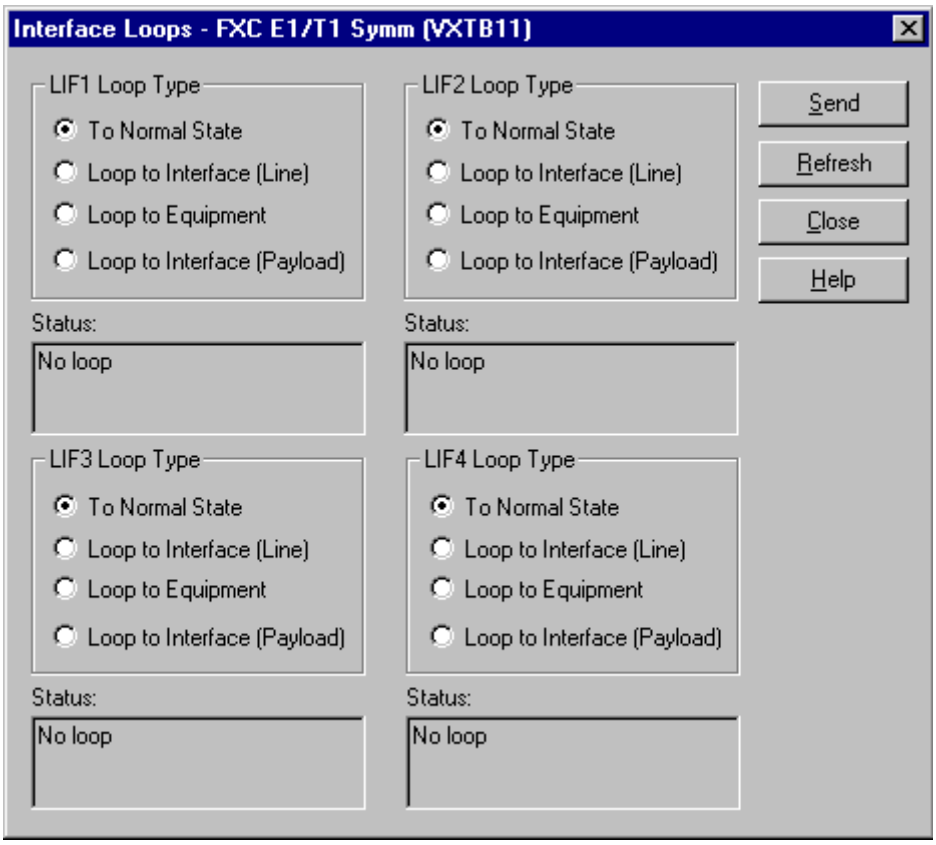


Figure 19. Interface Loops dialogue box in the FXC E1/T1 Manager

2. Select loop types for particular Line Interfaces (LIFs) as required.

Select loop types for a particular **LIF** (**1**, **2**, **3**, **4**) **Loop Type**, as required:

- **Loop to Equipment** is a near-end loop. The signal is looped back from the interface to the node cross-connection section. The TX direction is forwarded as AIS. This loopback can be used to test the FXC E1 interface framer.
- **Loop to Interface (Line)** is a far-end loop. The signal to the 2M interface from another interface (NE) is looped back. The whole signal in the unit's 2Mbit/s interface is looped back, synchronising it to the incoming signal. The RX direction is forwarded as AIS.
- **Loop to Interface (payload)** is a far-end loop. The signal to the 2M interface from another interface (NE) is looped back. The reframed signal in the unit's 2Mbit/s interfaces is looped back, synchronising it to the node clock. The RX direction is forwarded as AIS.

3. **Click Send to apply the loop(s).**

Caution

Traffic is cut when you apply loops in the related interfaces, channels, or Flexbuses.

---

4. **Use the Refresh button to view the current information.**

8.6.3 Using loopbacks to test the FXC RRI transmission unit

Purpose

Seven integrated loopback tests are available in the FXC RRI units for testing and diagnostics purposes. You can verify the operation of the signal path with the help of an external BER analyser equipment.

Steps

1. **Click FXC RRI → Interface Loops.**

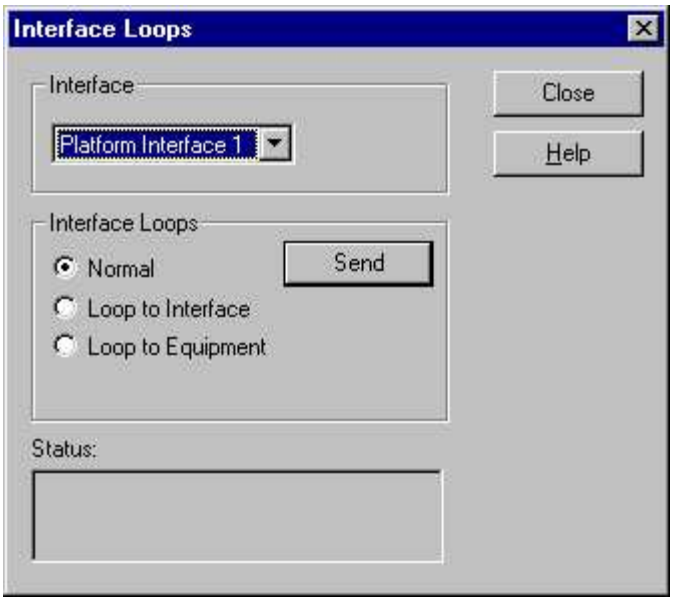


Figure 20. Interface Loops dialogue box in the FXC RRI Manager

2. In the Interface Loops window, select loop types for particular Flexbus, Flexbus Channel, Platform Interface, or Outdoor Unit, as required.

Select loop types for a particular **Flexbus** interface as required:

- The Flexbus **Loop to Equipment** is a near-end loop. The signal is looped back from the Flexbus interface to the cross-connection section. In the TX direction the signal is passed through.
- The Flexbus **Loop to Interface** is a far-end loop. The signal to the 2M Flexbus channel from another interface (NE) is looped back. The whole signal in the Flexbus channel is looped back, synchronising it to the incoming signal. The RX direction is forwarded as AIS. This loop does not work with a direct Flexbus cable connection.

Note

Activating 'Flexbus loop to interface' cuts the connection to the outdoor unit. The Flexbus Bit Error Ratio (BER) measurement does not work and this generates the irrelevant Flexbus alarms *99 Error rate E-3* and *81 Loss of frame alignment*.

Caution

Setting a Flexbus loop cuts the connection to the outdoor unit until the loop is cancelled or it expires. This includes all data and management information. The interface loopback in FlexiHopper stays active until the loopback timeout expires.

Select loop types for a particular **FB Channel** interface as required:

- The Flexbus channel **Loop to Interface** is a far-end loop. The signal to the 2M Flexbus channel from another interface (NE) is looped back. The whole signal in the Flexbus channel is looped back, synchronising it to the incoming signal. The RX direction is forwarded as AIS.

Select loop types for a particular **Platform Interface** as required:

- The Platform interface **Loop to Equipment** is a near-end loop. The signal from the platform interface to the node cross-connection section is looped back. The TX direction is forwarded as AIS.
- The Platform interface **Loop to Interface** is a far-end loop. The signal to the platform interface from another interface (NE) is looped back. The whole signal in the unit's interfaces is looped back, synchronising it to the incoming signal. The RX direction is forwarded as AIS.

Select loop types for a particular **OU Radio Interface** as required:

- The Outdoor unit **Loop to Interface** is a far-end loop. The incoming radio signal is looped back to the other end of the radio hop. In the RX direction the signal is passed through.

Note

The connection to the outdoor unit is cut, when 'Outdoor unit loop to interface' is activated.

- The Outdoor unit **Loop to Equipment** is a near-end loop. The incoming Flexbus signal is looped back to the indoor unit. In the TX direction the signal is passed through.

  Note that this loop may cause an irrelevant alarm: *60 No incoming radio signal* or *59 Incoming signal level incorrect*.

3. **Click Send to apply the loop(s).**

Note

Traffic is cut when you apply loops in the related interfaces, channels, or Flexbuses.

8.6.4 Using loopbacks to test the FXC STM-1 transmission unit

Purpose

You can set interface loops manually to test the FXC STM node interface loops. These are 2M loops to SDH or PDH.

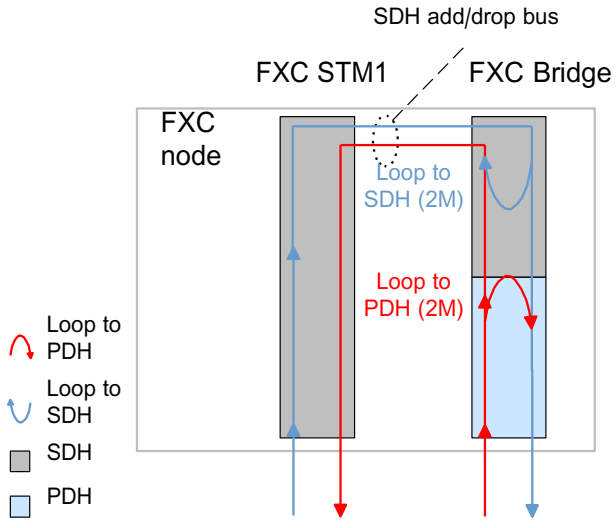


Figure 21. FXC STM node 2M loops

Through the **Loops** window, you can view and modify the FXC STM node interface loops for the SDH-PDH channels. You can modify one or several channels at a time.

Steps

1. **Click FXC STM-1 → Loops to open the Loops window.**

   The **Loops** window opens, showing the SDH-PDH Channels.

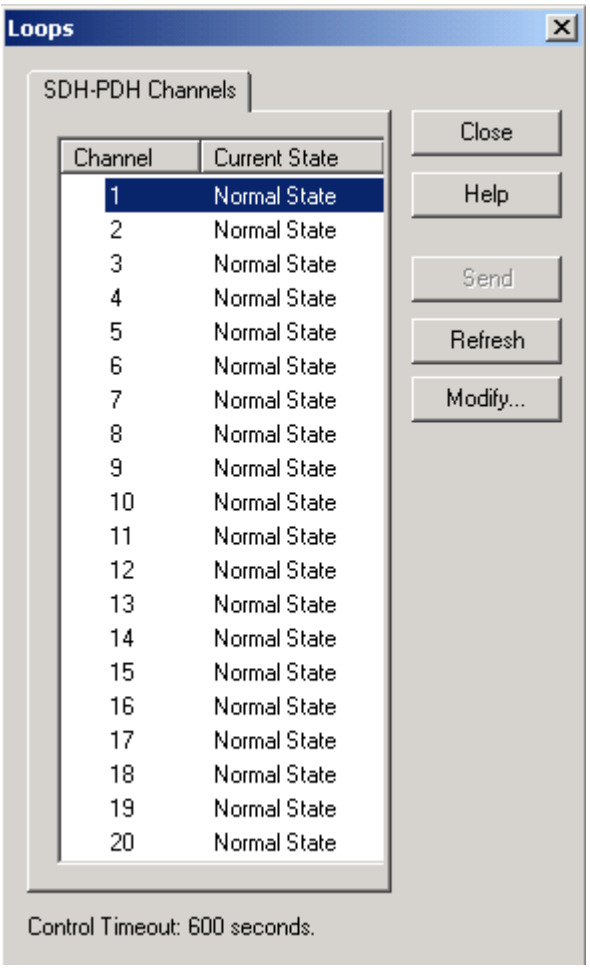


Figure 22. The Loops window, SDH-PDH Channels

2. **Select a channel from the list by clicking on it.**

3. **Click Modify.**

   The **Modify** dialogue box opens.

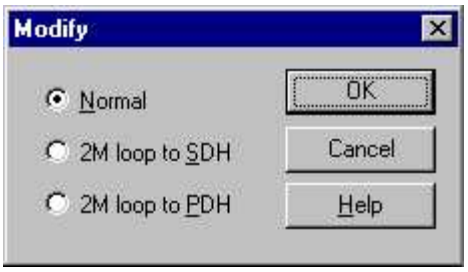


Figure 23. The Modify dialogue box

4. Select/clear the desired states.

Select/clear the desired states. **2M loop to SDH** means that the channel is looped to the SDH part of the STM-1. **2M loop to PDH** means that the channel is looped to the PDH part of the STM-1.

5. Click OK.

Further information

Control Timeout shows the time for which the loops will be sustained unless you set them manually back to normal state. You can change the FXC STM-1 Control Timeout value in the **Service Interface** dialogue box.

8.6.5 An example of loopback usage during a traffic cut

Purpose

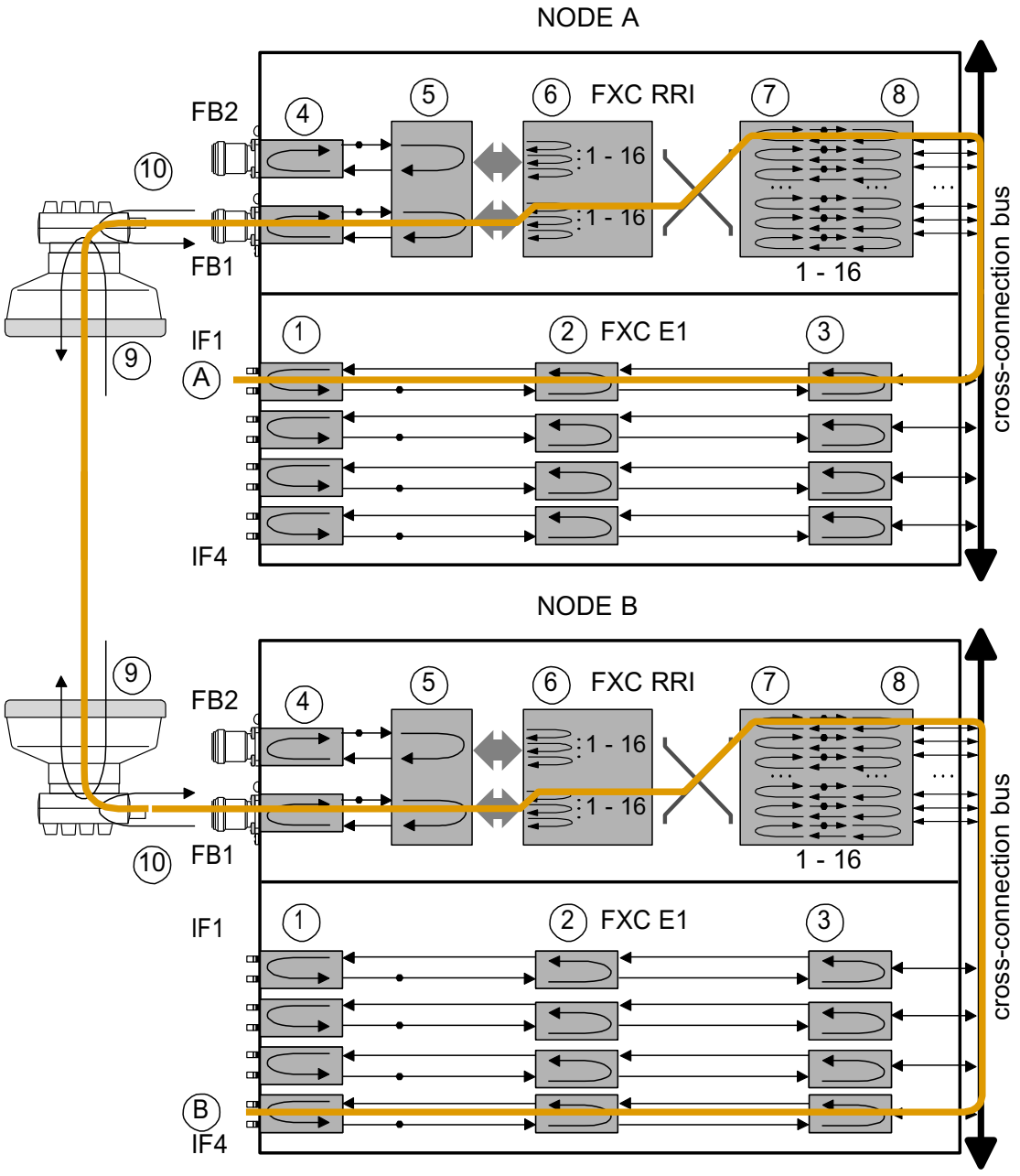


Figure 24. Example of loopback usage during a traffic cut

Let us assume that there is traffic cut between interface (A) in node A and interface (B) in node B. The signal path is presented in Figure *Example of loopback usage during a traffic cut*. Loopbacks can be used to find where the cut is located. There are several approaches to the problem, but the principle is the same in all of them, which is looping the signal back at different positions in the signal path and thus ensuring that the signal is acceptable from the measurement point to the loop position. One possible approach is presented below.

Steps

1. **Connect an external BER tester to the IF 4 in node B, FXC E1, denoted here as (B).**

2. **Activate FlexiHopper loop to equipment in node B (10).**

3. **Check the value on the BER meter.**

   If the signal is acceptable, the traffic cut is not located inside node B or in the Flexbus connection between the FXC RRI unit and FlexiHopper in node B. Let us assume here that the signal is acceptable.

4. **Remove the loop to equipment in FlexiHopper, in node B.**

5. **Activate FXC E1 loop to equipment in node A (1).**

   Let us assume that the signal is not acceptable, which indicates that the break is between FlexiHopper in node B and the FXC E1 in node A.

6. **Remove the loop to equipment in FXC E1, in node A.**

7. **Activate FlexiHopper loop to interface, in node A (9).**

   Let us assume that the signal is acceptable, which indicates that the signal path up to that point is working.

Tip

Adjust the timeout to a sensible value before activating the FlexiHopper loop to interface, see Section *Adjusting service interface settings*.

8. **Wait for the control timeout to expire, after which the FlexiHopper loop to interface, in node A, is removed.**

9. Activate FXC RRI Flexbus loop to interface, in node A (5).

Let us assume that the signal is not acceptable, which indicates that the break is between FlexiHopper in node A and the Flexbus interface of FXC RRI, in node A. This indicates that the failure is in the FXC RRI unit in node A, in the Flexbus cable, or in the FlexiHopper in node A.

8.7 BTS Transmission Hub faults

8.7.1 No power to the transmission node

Description

If there are no LEDs activated in any of the FXC units in the hub, check the hub power system. Start from the mains power supply side and move on to check the MetroHub cabinet (if applicable).

Possible causes are:

- fault in the site mains power supply
- broken power cable
- power supply unit switch in stand-by position
- loose fixing screws in the power interface unit or the power supply unit
- active cold start
- overheated power supply unit

Symptoms

Power supply in stand-by position

Blinking yellow LED in the power supply unit.

Cold start active

Steady yellow LED in the power supply unit.

Overheated power supply unit

Steady yellow LED in the power supply unit.

Power supply unit broken

Alarm ‘Fault in power supply’ may be activated. No lights in the power supply unit, or the LED is red.

Recovery procedures

Fault in the site mains power supply

Steps

1. **Check the site mains power source and fuses. Replace if needed.**
2. **Measure with a multimeter that the DIPx has operating voltage.**
3. **Make sure the polarity is correct if using DC mains.**

Broken power cable

Steps

1. **Replace the power cable.**

Power supply unit switch in stand-by position

Steps

1. **Turn the switch ON.**

Power interface unit's or power supply unit's fixing screws are loose

Steps

1. **Tighten the loose screws.**

Cold start active

Steps

1. **Wait until the units are warmed up to the operational temperature range, and the power supply unit LED switches from yellow to green.**

Overheated power supply unit

Steps

1. **Wait for the power supply unit to cool down.**
2. **Check that the fan is functioning correctly.**

Power supply unit broken

Steps

1. **Replace the power supply unit.**

Power interface unit broken

Steps

1. **Replace the unit.**

Short circuit in one of the units

Steps

1. **Pull the units out, one by one, until the power comes back on.**

   Start from the FXC units, proceed to the fan, and finally replace the interface unit.

2. **Re-install the units one by one, and replace the faulty unit(s).**

8.7.2 Transmission node powered, but a manager connection cannot be established

Description

The problem situation when a transmission node is powered, but a connection to the manager cannot be established can be caused by:

1. a bad or poorly connected LMP cable
2. the wrong COM port settings in the UltraSite BTS Hub or MetroHub Manager
3. SW problems in the PC

4. a broken FXC master unit
5. a broken DIUx interface unit

Symptoms

FXC master unit broken

The transmission unit LED is off.

Recovery procedures

Bad or poorly connected LMP cable

Check the cable and verify that it is properly connected.

Check that the pins are not broken in the DIUx and that the sockets are fine in the LMP connector. Replace the DIUx interface unit or the cable if the connections are bad.

Wrong COM port settings in the UltraSite BTS Hub or MetroHub Manager

Select the right COM port settings in the Tools → Options menu. The default settings are: port: COM1, and speed: 9600.

SW problems in the PC

Restart the PC. It might be useful to restart the UltraSite BTS Hub or MetroHub as well by turning the power switch off, and after a few seconds back on when you are setting up a new node.

Caution

Risk of traffic and data loss. Do not restart an UltraSite BTS Hub or MetroHub that is already operating in a network, as this may cause severe traffic cuts.

FXC master unit is broken

Replace the FXC master unit.

DIUx interface unit is broken

Check that the DIUx interface unit has been correctly installed. Restart the UltraSite BTS Hub or MetroHub by turning the power switch off. Wait a few seconds, then turn the power switch back on. If the LED is still red, restart the DIUx unit by removing it for a few seconds and putting it back in. If the LED is still red, replace the DIUx interface unit.

8.7.3 The cross-connections test of a transmission unit fails in the manager

Description

Cross-connections test fails in the Commissioning Wizard. This may be caused by a fault in an FXC unit.

Symptoms

The cross-connections test fails

The cross-connections test fails in the Commissioning Wizard.

Recovery procedures

Fault in an FXC unit

Steps

1. **Remove the unit, starting from the right-hand side.**
2. **Redo the test until you find the faulty unit.**
3. To test the master FXC unit

Steps

a. **Remove the master unit and plug it into slot 2 of the node.**

b. **Plug-in an already tested unit in slot 1 acting temporarily as a master unit.**

c. **Redo the test.**

d. **If the test is not passed, the original master unit now plugged into slot 2 is faulty.**

9 Troubleshooting software licensing

9.1 Change of unit

Description

When replacing an existing FlexiHopper Plus unit there are two situations related to software licensing if a licensed feature is being used.

- The unit being replaced is still under warranty.
- The warranty period for the unit being replaced has expired.

Symptoms

The replacement unit has been installed and is currently using a time-limited license instead of the previous non-time limited license.

Recovery procedures

The replacement unit is using a licensed feature and was replaced under warranty.

Steps

1. **The replacement unit should come with the licences that were purchased for the unit being replaced.**
2. **If the replacement unit does not contain the correct license then contact Nokia Siemens Networks. The existing time-limited license will allow use of the feature for 60 days.**
3. **When the correct license is received, install the license using the license manager.**

The replacement unit is using a licensed feature and the warranty has expired.

Steps

1. **Purchase the required licence and install them using the licence manager. The existing time limited license will allow use of the feature for 60 days.**

9.2 Software licence key is not available

Description

If the software licence key is not available, an error dialogue box is displayed.

Symptoms

An error dialogue box is displayed

If the licences to be activated have not been installed or if the licence installation was not successful, an error message is displayed.

Recovery procedures

Installing the software licence

Steps

1. *If* the licences to be activated have not been installed,

   Then

   install the required licence(s) by clicking Yes in the error message dialogue box.

   The following error message is displayed if the licences to be activated have not been installed:

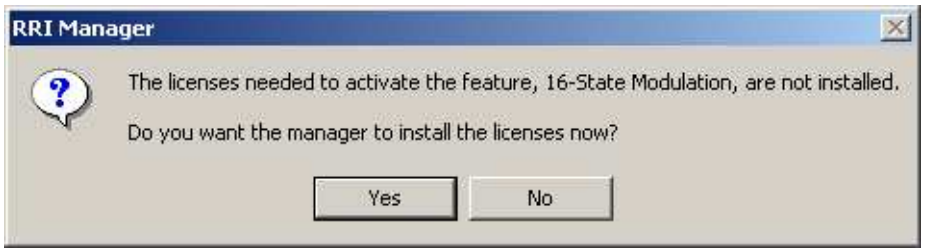


Figure 25. Licence not installed

After you have clicked **Yes**, the required licence is searched in the system and installed if found.

2. *If* the licence is not found in the system,

   Then

   verify and correct the licence file folder through the licence manager.

   The following error message is displayed if the licence is not found in the system:

Figure 26. The licence installation was not successful

9.3 Typographic errors in the licence key

Description

If there are typographic errors or other problems with the licences, an error dialogue box is displayed.

Symptoms

An error dialogue box is displayed

Recovery procedures

Checking the licence file folder

Steps

1. **Check that the licence file folder path is correct in the licence manager.**

   The following error message is displayed if there are typographic errors or other problems with the licences:

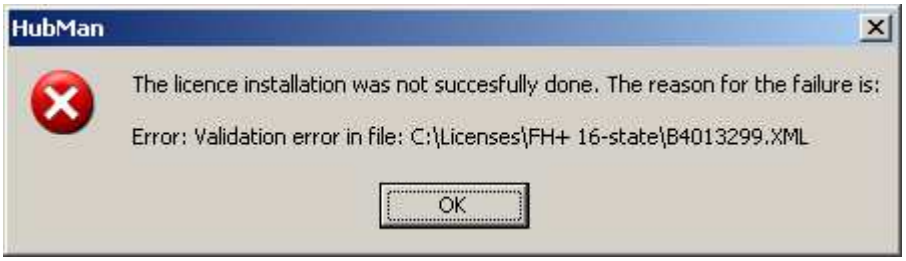


Figure 27. Error message: validation error in a file

Note

The file path displayed in the error message is just an example. It will change with the actual location that the user has specified through the license manager.

10 Completing troubleshooting

Steps

1. **After having replaced the faulty unit, send it to hardware service.**

2. **If fault still exists after troubleshooting, contact your local Nokia Siemens Networks representative.**

Related Topics

Using pending cross-connections to locate faults

Reference

20 Blocked from use

Overview of using loopbacks to test the transmission node

Instructions

Using loopbacks to test the FXC E1(T1) transmission unit

Using loopbacks to test the FXC RRI transmission unit

Using loopbacks to test the FXC STM-1 transmission unit

Reference

21 Loop to interface

22 Loop to equipment

Using loopbacks to test the FXC RRI transmission unit

Reference

99 Error rate E-3

81 Loss of frame alignment

An example of loopback usage during a traffic cut

Instructions

Adjusting service interface settings