

C34240.90–D0
Nokia FlexiHopper (Plus) Product Doc, Rel. 2.7

Troubleshooting Nokia FlexiHopper (Plus) 2.7

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1 Trouble management

1.1 Managing alarms

1.1.1 Reading alarms

Purpose

All current alarm information is shown in the **Current Alarms** window.



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **To open the Current Alarms window, click Alarms → View in the Hopper Manager menu**

A list of current alarms is displayed.

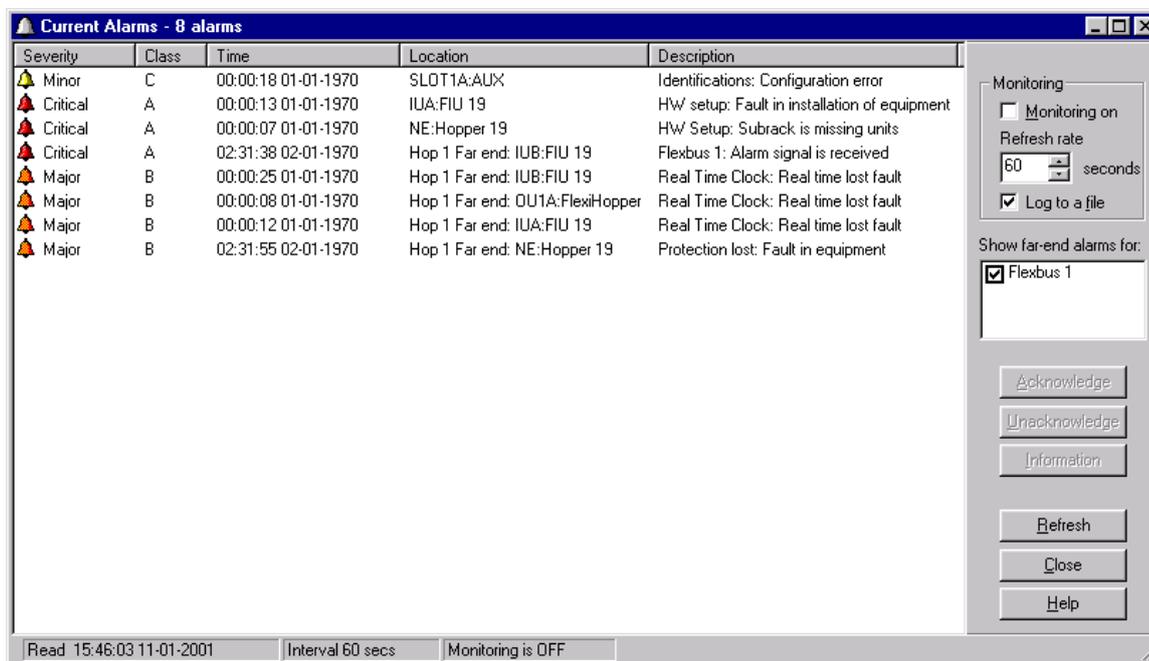


Figure 1. Current Alarms window

4. To sort the alarms, click on a column heading in the window

To sort the alarms into a reverse order, click a heading twice.

You can sort the alarms by *Severity*, *Class*, *Time*, *Location*, and *Description*. By default, the alarms are listed by *Time*.

5. To view additional troubleshooting information of an alarm, double-click the alarm on the list in the Current Alarms window

The **Troubleshooting Information** dialogue box opens.

6. To refresh the alarm information, select Manage → Refresh in the Hopper Manager menu

Or

In **Current Alarms** window, click the **Refresh** button.

Or

To keep the alarm list updated, activate the alarm monitoring by clicking **Alarms** → **Monitor**.

A confirmation dialogue box opens with the text "Do you want to create the log file?". Click **Yes** to create a log file.

Or

In the **Current Alarms** window, check the **Monitoring on** box.

Checking this box means that the alarm information is refreshed automatically, for example, every 60 seconds (you can specify the time in the **Refresh rate** field).



Note

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.

7. **To view far-end alarms, check the checkbox for a Flexbus in the Show far-end alarms for: field and click on Refresh**

Or

Check the checkbox for a Flexbus, and press F5.

Expected outcome

You can view the current alarm information in the **Current Alarms** window, which you can sort and refresh.

1.1.2

Acknowledging alarms



Steps

1. **Open the Current Alarms window**
2. **In the list, select the alarm to be acknowledged**
3. **Mark an alarm as acknowledged**

You can mark an alarm as acknowledged in two ways:

- select **Alarms** → **Acknowledge** in the Hopper Manager menu, or
- click the **Acknowledge** button in the **Current Alarms** window.

The symbol for the alarm changes to a bell symbol with a tick in the corner ()

4. **To remove the acknowledged mark, first select the alarm to be unacknowledged and then click the Unacknowledge button in the Current Alarms window**

You can also unacknowledge an alarm by selecting **Alarms** → **Unacknowledge** in the Hopper Manager menu.

The symbol for the alarm changes back to a bell ()

Expected outcome

The alarm is acknowledged.

Further information

Alarms marked with the bell symbol and a cross () have been cleared from the node.

1.1.3

Viewing alarm history



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In the Hopper Manager menu, select Alarms → History**

The **Alarm History** window opens.

The window displays a list of past alarms, including those which have been cancelled. The bell symbol next to an alarm () indicates that the alarm is active. A bell symbol with a cross next to an alarm () indicates that the alarm is deactivated.

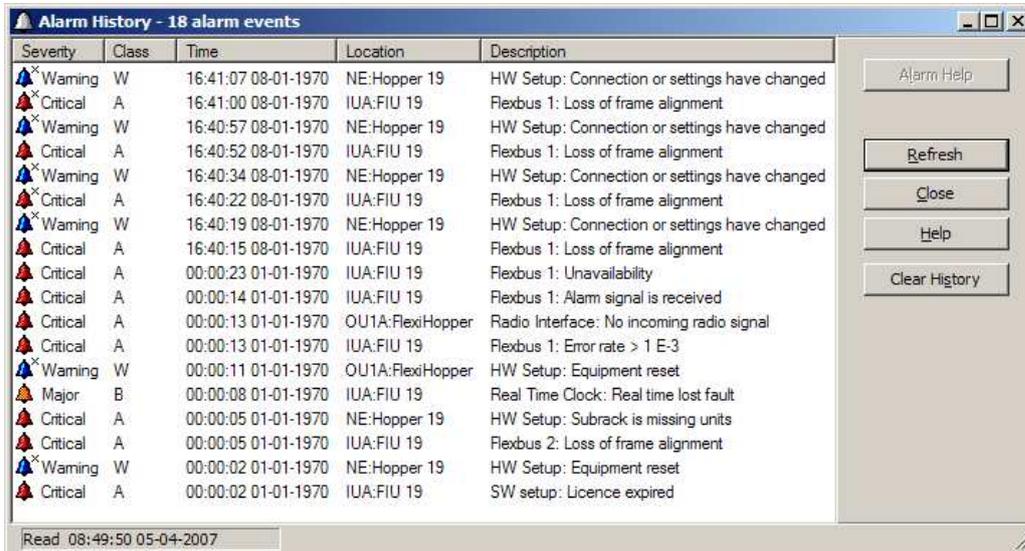


Figure 2. Alarm History window

4. To refresh the alarm history, click the Refresh button in the Alarm History window

Expected outcome

The alarm history can be viewed and refreshed in the **Alarm History** window.

1.1.4 Clearing Alarm History



Steps

- 1. Start Nokia Hopper Manager**
- 2. Establish a connection to the node**
- 3. In the Hopper Manager menu, Select Alarms → Clear Alarm history**
- 4. Press Yes in the confirmation dialog**

Expected outcome

The progress dialog opens and alarm history is cleared.

1.2 LEDs in FlexiHopper (Plus)

1.2.1 Viewing Service LEDs with Hopper Manager

Purpose

Nokia Hopper Manager displays LED indicators in the **Equipment View**.

Note that the LED indicators in the **Equipment View** window show the status of each functional entity of the node. They are not the same as the front panel LEDs.



Steps

1. **To view LED indicators, select Tools → Options → Manager Options in the Hopper Manager menu**

The **Manager Options** dialogue box opens.

Select the **View** tab and check the **Show hop and status information** checkbox.

Or

In the **Equipment view**, check the checkbox for **Show hop and status information**.

Further information

You can also set the refresh time for LED and other status monitoring.

2. **To view the service LEDs for several of the far-end units, select the Polling option for each far-end in the Equipment View**

Do not set the refresh rate for these items to a very small value if connecting via the Q1 bus. Polling for these items is very resource consuming on the Q1 bus and may cause other applications to slow down or fail. If the connection speed is very low, turn off the status polling. Also turn off the polling during a software download as this also causes delays for the download

Expected outcome

Nokia Hopper Manager displays the selected LED indicators in the **Equipment View**.

1.2.2 FIU 19 (E) main LEDs

A tricolour service LED is located on the FIU 19 (E) main connector panel. When FIU 19 (E) is used in single (1+0) mode, the LED indicates the following:

Table 1. FIU 19 (E) LED in 1+0 mode

LED	Situation
RED	Transmission failure. The fault can be in the indoor unit, outdoor units, or far-end units.
YELLOW	The indoor unit, outdoor units, or far-end units have active alarm(s). The data is transmitted in this configuration, but may not be transmitted in other configurations or if another failure occurs. The overall performance capability is reduced.
GREEN	Both terminals over this hop are operating normally and no alarms are active. A blinking green LED indicates that there is a connection to the node manager.

When FIU 19 (E) is used in 1+1 protected mode, the LEDs indicate the following:

Table 2. FIU 19 (E) LEDs in 1+1 mode

IU1 LED (Active)	IU2 LED (Passive)	Situation
RED	RED	Transmission failure. Both protected paths are faulty. IU1 RED LED indicates that data is not transferred. IU2 RED LED indicates that one or more unit(s), including far-end unit(s), have critical alarm(s) active.
RED	YELLOW	Abnormal situation.
RED	GREEN	Abnormal situation.
YELLOW	RED	Data is transferred, but protection is lost. IU1 YELLOW LED indicates that data is transferred normally, but protection is lost. IU2 RED LED indicates that one or more unit(s), including far-end unit(s), have critical alarm(s) active.
YELLOW	YELLOW	Software compatibility problem, or commissioning error.

Table 2. FIU 19 (E) LEDs in 1+1 mode (cont.)

IU1 LED (Active)	IU2 LED (Passive)	Situation
YELLOW	GREEN	Abnormal situation.
GREEN	RED	Abnormal situation.
GREEN	YELLOW	Data is transferred. IU1 GREEN LED indicates that data is transferred normally and protection is enabled. IU2 YELLOW LED indicates that one or more unit(s), including far-end unit(s), have major or minor alarm(s) active.
GREEN	GREEN	All units in this NE are OK.

If the colour of the active unit LED (= IU 1 LED) is green, the transmission of data continues normally, even if the colour of the passive unit LED (= IU2 LED) is yellow or red.

You should, however, troubleshoot and replace the passive unit if necessary to ensure data transmission protection.

1.2.3 Flexbus LEDs

A green LED is located beside each Flexbus interface. The LED indicates the following:

Table 3. Flexbus LED

LED	Situation
No light	No power feed or Tx signal (but an IU-IU connection can be active).
Blinking GREEN	DC power feed to the outdoor unit active, Tx signal not active.
Continuous GREEN	DC power feed to the outdoor unit and Tx signal active.

1.2.4 Ethernet plug-in unit LEDs

There are two green LEDs on the Ethernet plug-in unit (EPIU) front panel. These LEDs indicate traffic activity and Ethernet link status for each Ethernet interface.

If FIU 19E is in reset status, the Ethernet plug-in unit is initialised and the LEDs blink once to indicate the initialisation. The initialisation of EPIU takes about 20 seconds.

Table 4. Ethernet plug-in unit LEDs

LED	Situation
No light	Ethernet link status is down. The Ethernet cable can be broken or the Ethernet interface disabled.
Continuous GREEN	Ethernet link has been established and the interface is ready to receive traffic. This does not indicate that the radio link is established correctly.
Blinking GREEN	Indicates that the interface is receiving or transmitting Ethernet packets, but it is not guaranteed that packets go through the radio link.

1.3 Using troubleshooting tools

1.3.1 Overview of troubleshooting tools

Purpose

Each functional entity in a network element contains several controls for pin-pointing faults or problems. The controls are divided into four areas:

- loopbacks
- forced controls
- internal tests (PRBS)
- measurement interface

The above areas are affected by the **Control timeout** setting in the network element.

In addition, there is a *Diagnostic Wizard* which combines the use of several of these controls automatically in order to simplify testing procedures.



Steps

1. Open the control window

In Nokia Hopper Manager menu, select **Maintenance** → **Tests** → **Diagnostic Wizard**.

The **Welcome to Diagnostic Wizard** window opens.

For more information on using diagnostic wizard, see *Using Diagnostic Wizard*.

Or

In Nokia Hopper Manager menu, select **Maintenance** → **Tests** → **Loopbacks**.

The **Loopbacks** window opens.

For more information on using loopbacks, see *Setting a loopback point*, *Using loopbacks in protected modes*, and *Ethernet plug-in unit test loops*.

Or

In the Hopper Manager menu, select **Maintenance** → **Tests** → **Forced Controls**.

The **Forced Controls** window opens.

For more information on forced controls, see *Using forced controls*.

Or

In the Hopper Manager menu, click **Maintenance** → **Tests** → **Internal Tests**.

The **Internal Tests** window opens.

For more information on internal tests, see *Using internal tests (PRBS)*.

Or

In the Hopper Manager menu, select **Maintenance** → **Tests** → **Measurement Interface**.

The **Measurement Interface** window opens.

For more information on, see *Using the measurement interface*.

2. **In the Timeout control or Control timeout field, set the time for the timeout**
3. **To reset the network element to its normal state manually, select Maintenance → Tests → To Normal State in the Hopper Manager menu**

Or

Use the toolbar in the window, which is related to the control in question.

Expected outcome

When the control timeout has been reached or the reset command has been given, the network element is reset to normal functioning.



Note

When a control has been set, no other settings take effect until the equipment is returned to the normal state.

1.3.2 Using Diagnostic Wizard

Purpose

Perform this test to diagnose Flexbus cables when receiving heavy bit error alarms.

You do not need to perform any actions other than starting the testing process. All tests are run as default, although you select which test to run.

Note that this test can only be performed in single operation mode.



Steps

1. **In the Nokia Hopper Manager menu, select Maintenance → Tests → Diagnostic Wizard**

The **Welcome to Diagnostic Wizard** window opens.

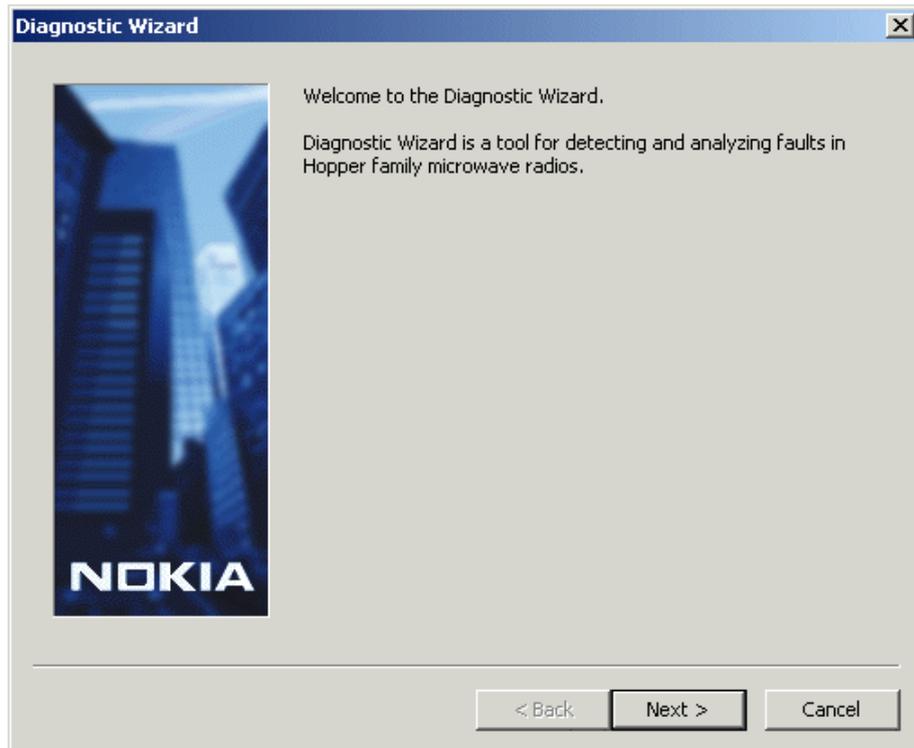


Figure 3. Welcome to Diagnostic Wizard window

2. Check the appropriate boxes to select the tests you want to run.

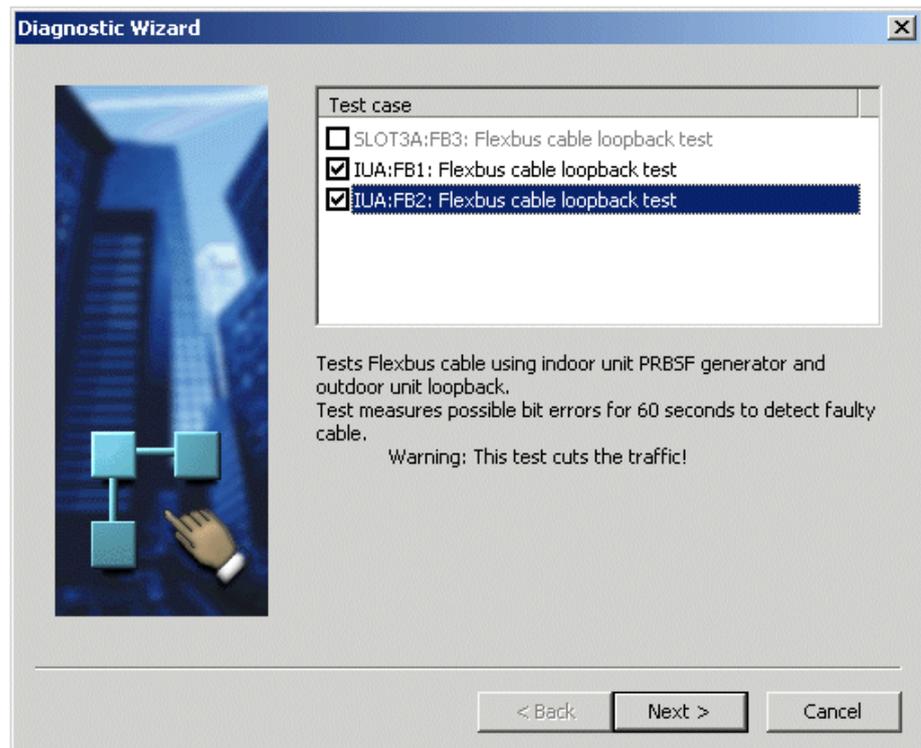


Figure 4. Selecting Flexbus cable(s)

The test list appears empty if the node is in protected mode.

3. Run the test

Click on the *Next* button to start running the tests. The tests start running and the *Testing window* is displayed. The results are updated as the tests are completed.

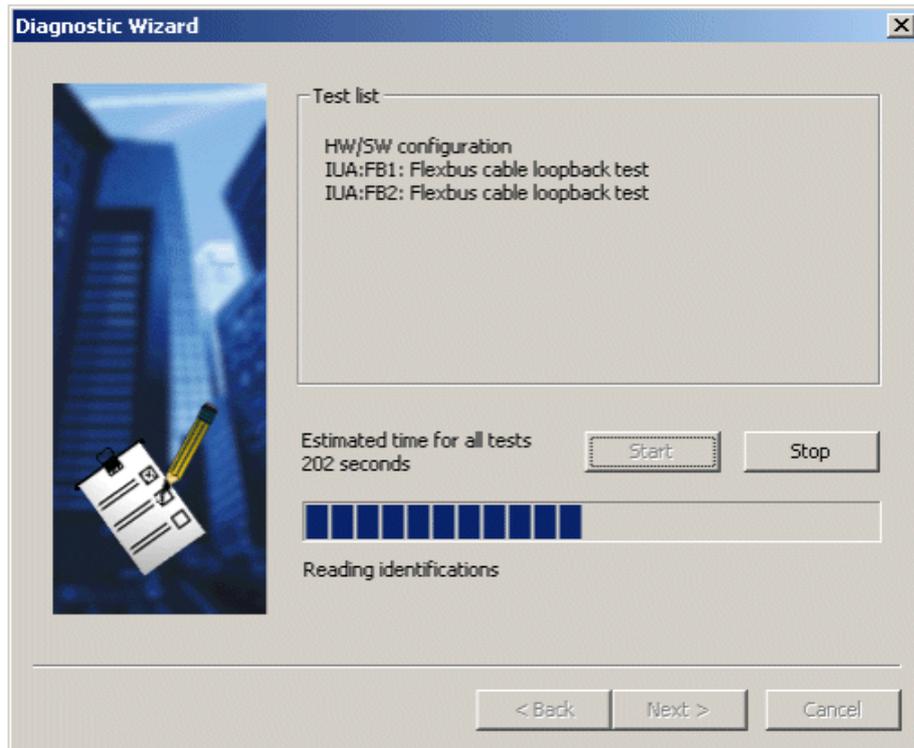


Figure 5. Testing window

Testing information and time estimation are showing in the window. Actual time may vary depending on the connection speed.

Expected outcome

When the tests are completed, the *Testing result window* shows the results with a report.

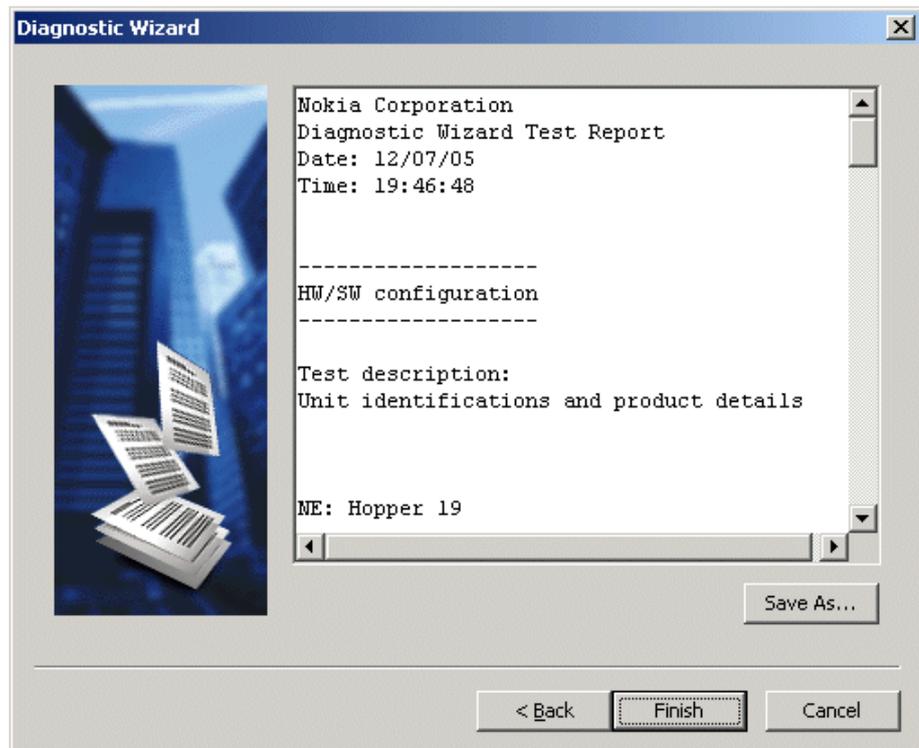


Figure 6. Testing result window

This wizard has options to run the test again by clicking the *Back* button or *Finish* button to finish the test.

You can save the report as a *.txt* or *.html* file by clicking the *Save As* button. The report includes test results and error information; see the following examples:

```
-----  
IUA:FB1: Flexbus cable loopback test  
-----
```

Test description:

Tests the Flexbus cable using the indoor unit PRBSF generator and outdoor unit loopback. The test measures bit errors for 60 seconds to detect a faulty cable.
WARNING: This test interrupts any operating radio hop.

Test status: Test passed

There were no faults detected in the cable.

This means that for the duration of the test there were no bit errors detected. It is possible that there are still faults with the cable that may not be apparent in the current conditions.

IUA:FB2: Flexbus cable loopback test

Test description:

Tests the Flexbus cable using the indoor unit PRBSF generator and outdoor unit loopback. The test measures bit errors for 60 seconds to detect a faulty cable. **WARNING:** This test interrupts any operating radio hop.

Test status: Test failed

Bit errors detected in the cable. Maximum bit error rate during test was 6.0e-002.

The Flexbus cable or connector is faulty. Check that the cable is constructed correctly and that there is no water leaking into the cable or connectors.

1.3.3 Setting a loopback point

Before you start



Using interface loopback in the outdoor unit cuts the connection to that unit. To restore the connection, switch the Flexbus power off and on, or wait for the timeout to expire.

Before connecting new loops, remove the old loops and wait at least one minute. This gives the system time to stabilise after the test loops, so that it can start a new test from a clean point.



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In Hopper Manager menu, select Maintenance → Tests → Loopbacks**

The **Loopbacks** window opens.

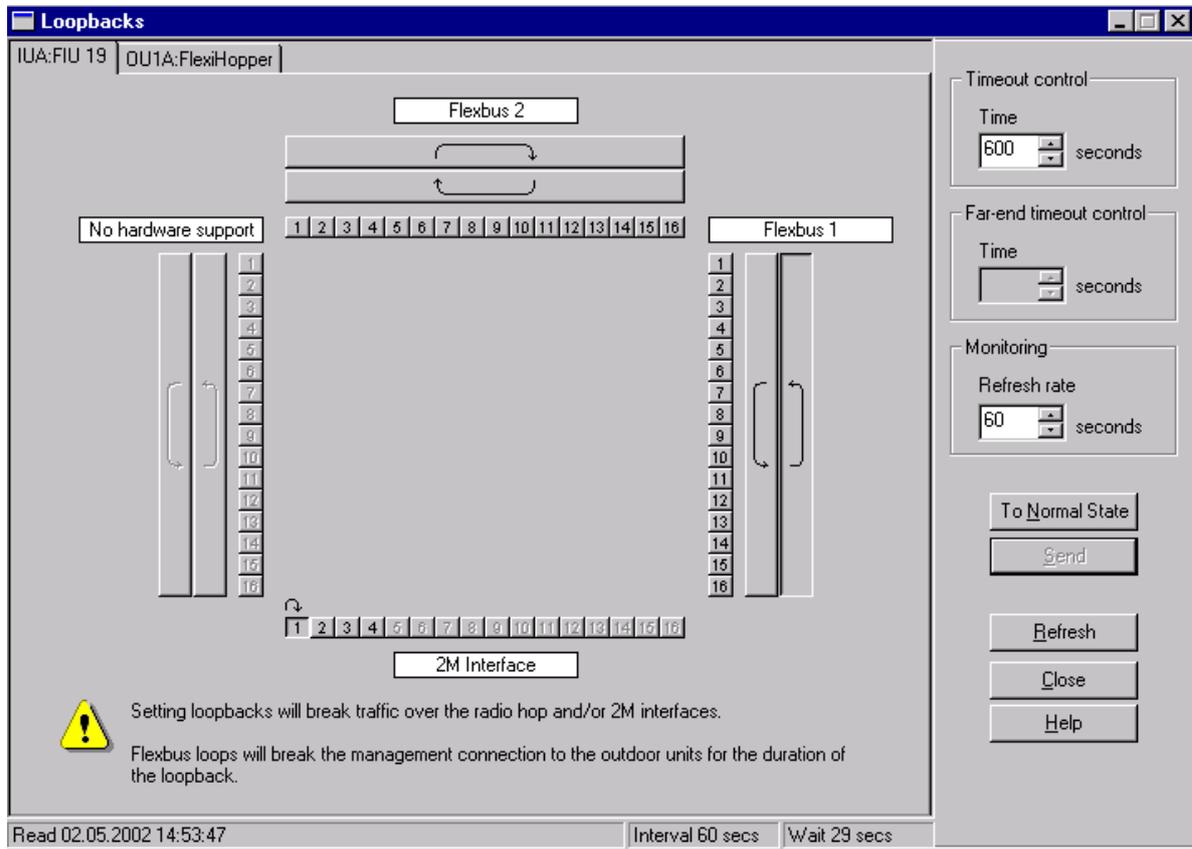


Figure 7. Indoor unit tab in the Loopbacks window

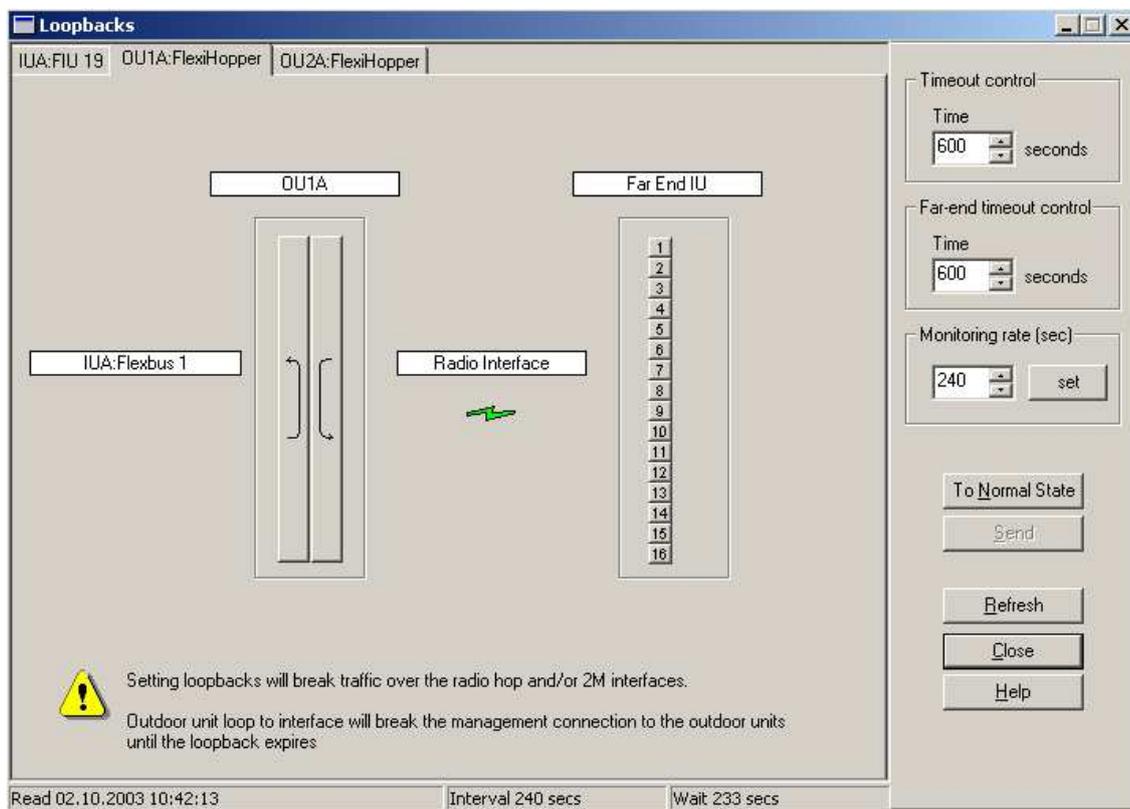


Figure 8. Outdoor unit tab in the Loopbacks window

The loopback status can change without you changing it, for example, if the timeout has been reached. Because of this, the **Loopbacks** window has its own status bar, which shows the last time the status of the loopbacks was checked and how long until the next refresh.

4. **Select the loopback location by clicking one of the unit tabs**
5. **Select the loopback to be activated by clicking the loopback button labelled with a number or arrow corresponding to the loopback**
6. **If necessary, change the timeout control value**

In the **Timeout control** field, set the time for the timeout.

7. **Activate the loopback by sending the changes to the node**

You can send the changes to the node in two ways:

- in the Hopper Manager menu, select **Manage** → **Send**, or
- click the **Send** button in the **Loopbacks** window.

Expected outcome

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. Setting an outdoor unit loop to radio interface cuts the connection to the outdoor unit until the loop expires.

Further information

You can only set 2 Mbit/s loopbacks to the far-end.

1.3.4 Using loopbacks in protected modes

Before you start

Caution

The signal may break when using a loopback.

Always connect loops to both paths of the protected radio hop so that the complete protected radio path is tested.



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In Nokia Hopper Manager menu, select Maintenance → Tests → Loopbacks**

The **Loopbacks** window opens.

4. **Activate a loopback to an inactive Flexbus**

For more information, see *Setting a loopback point*.

Loop to an active transmitter path causes a transmitter changeover.

5. **Connect the loopback to the active Flexbus**

Expected outcome

The complete protected radio path or one of four possible radio paths is tested.

Loop to an active transmitter path causes transmitter changeover.

Further information

For more information, see *Built-in test features*.

1.3.5 Using Ethernet plug-in unit test loops

Purpose

The following loops are available for the near-end EPIU (Ethernet plug-in unit):

- interface loops for Eth-1 and Eth-2 (packets are echoed back to interface),
- crossed interface loop between Eth-1 and Eth-2,
- loops to equipment for Eth-1 and Eth-2,
- crossed loop to equipment between Eth-1 and Eth-2.

At the far-end EPIU, you can set equipment loops (crossed or non-crossed loops).

Before you start

Note that it is the user's responsibility to set test loops correctly. The use of test loops cuts the normal payload Ethernet traffic through the EPIU. It is recommended to use only one test loop at a time.



Steps

1. **In the Hopper Manager menu, select Maintenance → Tests → Loopbacks**

Select the EPIU tab, the EPIU test loop settings window opens.

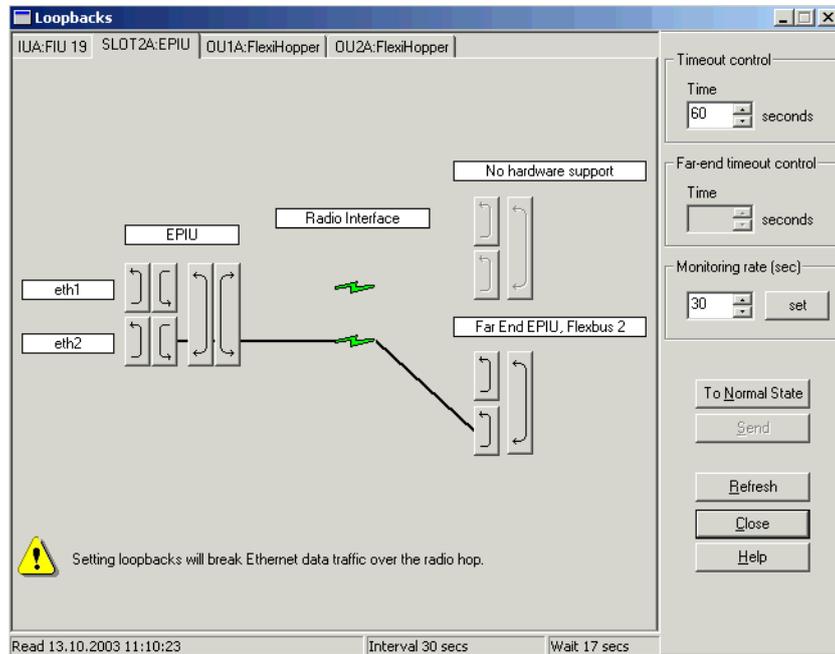


Figure 9. Test loop settings for the Ethernet plug-in unit

2. Specify the test loop settings

For more information, see *Setting a loopback point*.

Expected outcome

The test loop is connected.

Further information

You can check the crossed interface test loops via *PING* application software on a PC. You can check the use of non-crossed test loops via special application software or, for example, Ethernet test equipment.

1.3.6 Using forced controls

Purpose

Units can contain forced controls, which alter the operational state of the network element for a user-definable period of time. These controls affect various parameters, such as cross-connections. They are normally used for testing purposes.



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In the Nokia Hopper Manager menu, select Maintenance → Tests → Forced Controls**

The **Forced Controls** window opens.

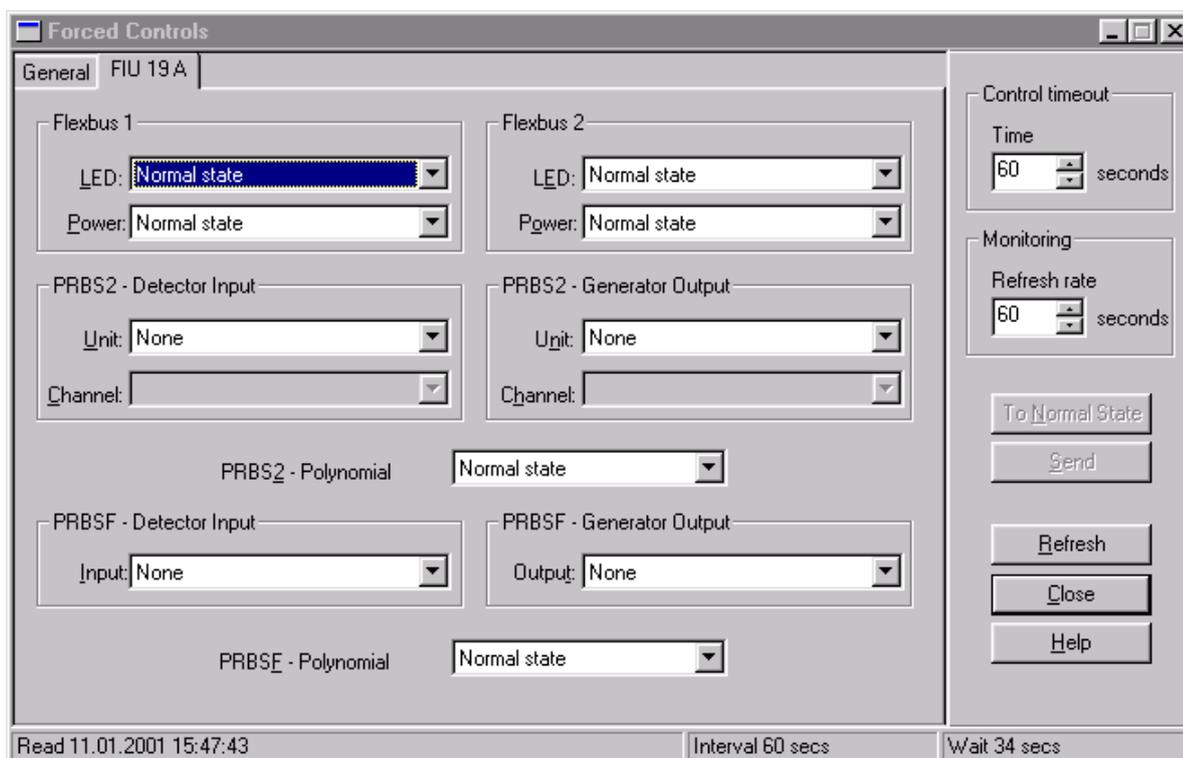


Figure 10. Forced Controls window

The controls are divided into tabs depending on the functional entity they apply to, and a general tab, which applies to the network element.

4. **Select the FIU 19A tab**
5. **Select forced control values in the drop-down lists**
6. **Change control timeout value if necessary**

In the **Control timeout** field, set the time for the timeout.

7. **Refresh the values**

In the **Forced Controls** window, click the **Refresh** button.

Or

Select **Tools** → **Options** → **Manager Options** and then the **Auto Refresh** tab. Check the **Refresh rate** in the dialogue box.

8. **To activate the selected control by sending the changes to the node, click the Send button**

Or

In the Hopper Manager menu, select **Menu** → **Send**.

Expected outcome

The forced control values have been set.

Further information

The control settings can change without you changing them, for example, if the time-out has been reached. Because of this, the **Forced Controls** window has its own status bar, which shows the last time the status of the controls was checked and how long until the next refresh.

1.3.7 Using internal tests (PRBS)

Purpose

PRBS (pseudo-random binary sequence) is a two-level signal that has a repetitive sequence, but a random pattern within the sequence. It is used to test the radio link, since it has the basic characteristics of noise, but in terms of parameters that are easily controlled. One generator in the indoor unit (FIU 19/FIU 19E) sends a PRBS signal, and the other end of the radio link detects this signal.



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In the Hopper Manager menu, select Maintenance → Tests → Forced Controls**

The **Forced Controls** window opens.

Further information

For more information, see *Using forced controls*.

4. **Set the Detector Input and Generator Output in the drop-down list**
 - Select Unit:
 - For PRBS2, select the 2M interface (path towards the 2 Mbit/s plug-in units) or the Flexbus 2M channel (direction to the Flexbus).
 - For PRBSF, select the used Flexbus.
 - Select Channel:
 - If you have selected the 2M interface, then select one 2 Mbit/s interface from one of the 2 Mbit/s plug-in units.
 - If you have selected a Flexbus 2M channel, then select one of the 16 channels of one Flexbus.
5. **In the Forced Controls window, select the Polynomial (PRBS bit pattern to be used) in the drop-down list**

Further information

For more information, see *Using forced controls*.

6. To reset the counters, select Maintenance → Performance → Reset counters in the Hopper Manager menu

The **Reset Counters** dialogue box opens.

7. In the Reset Counters dialogue box, select the unit and click the OK button

Click **Yes** in the confirmation dialogue.

8. In the Hopper Manager menu, click Maintenance → Tests → Internal Tests

The **Internal Tests** window opens, and you can select the unit-specific tests to perform.

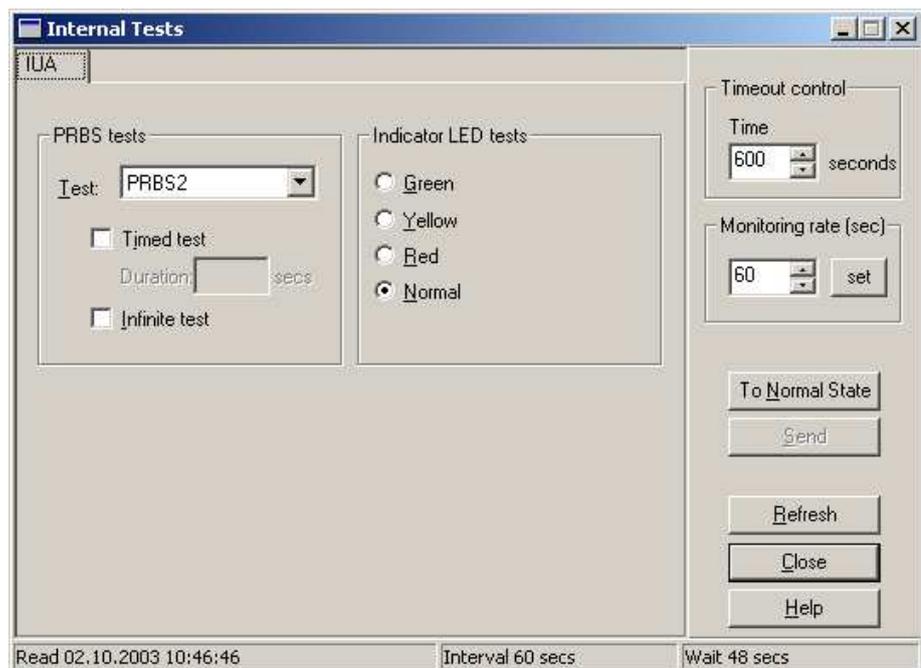


Figure 11. Internal Tests window

9. In the Test drop-down list, select PRBS mode

- Timed test: The measurement result and alarm state are displayed only after the whole measurement time has passed.
- Infinite test: The measurement result and alarm state are updated every second.

10. To start the PRBS test, click the Send button in the Internal tests window

Or

Select **Menu** → **Manager** → **Send** in the Hopper Manager menu.

11. View the PRBS test results

In the Hopper Manager menu, select **Maintenance** → **Performance** → **Measurements**.

The **Select Measurements** dialogue box opens.

Select PRBS2 or PRBSF and click **OK**.

The **Measurements** window opens.

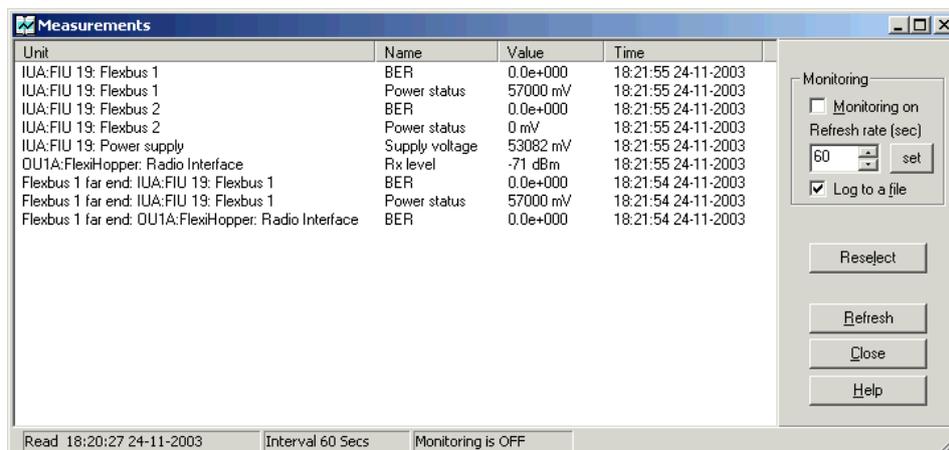


Figure 12. Measurements window

If the bit error ratio (BER) value in the **Measurements** window is higher than 1E-3, the alarm is activated. The alarm is cleared after one complete measurement with BER value better than 1E-3, or by resetting the counters.

Expected outcome

The internal test (PRBS) has been performed.

Further information

For more information on PRBS, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

1.3.8 Using the measurement interface



Steps

1. **Start Nokia Hopper Manager**
2. **Establish a local connection**
3. **In the Hopper Manager menu, select Maintenance → Tests → Measurement Interface**

The **Measurement Interface** window opens.

4. **In the Measurement point connector signal drop-down list, select the signal to be connected to the measurement point**

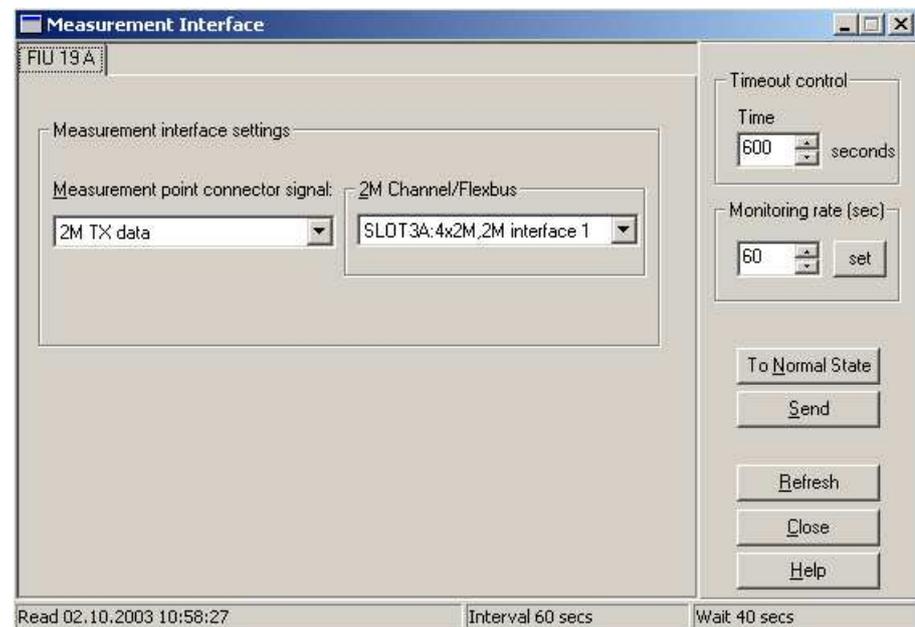


Figure 13. Measurement Interface window

The 2 Mbit/s data and clock signals also require you to choose a channel.

5. **In the Timeout control field, change control timeout value if necessary**

In the **Time** text box, set the time for the timeout.

6. **To activate the signal to the measurement point by sending the changes to the node, click the Send button**

Or

In the Hopper Manager menu, select **Menu** → **Send**.

This sends all modified values to the network element.

7. **To refresh the information in the window, click Refresh**

Expected outcome

The selected signal is connected to the measurement point.

2 Troubleshooting

2.1 Flexbus LED has no light

Description

Flexbus LED has no light when a cable is connected to the Flexbus interface.

Symptoms

Flexbus LED has no light

Recovery procedures



Check the indoor unit settings

Steps

1. **For more information on different LED indications, see Flexbus LEDs**
2. *If an outdoor unit is connected*

Then

Connect to the node with Hopper Manager and check the indoor unit settings

For more information on connecting to the node, see *Establishing a connection to the node* in the *Administer* category.

In the Hopper Manager menu, select **Configure** → **Settings**.

The **Select Object** dialogue box opens.

Select the indoor unit and click the **Modify** button.

The **FIU 19 Settings - FIU 19** dialogue box opens.

Check the **OU power supply** check box.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.2 Flexbus LED is blinking

Description

When the Flexbus LED is blinking, there is no connection to the outdoor unit or the outdoor unit is not transmitting.

Symptoms

Flexbus LED is blinking

Recovery procedures

Check list when the Flexbus (FB) LED is blinking



Steps

1. Connect to the node with Hopper Manager

For more information, see *Establishing a connection to the node* in the *Administer* category.

2. Check if the outdoor unit is greyed out or missing in the Equipment View.

If the outdoor unit is not greyed out or missing, go to step 3.

Or

If the outdoor unit is greyed out or missing, go to step 4.

3. Check the indoor unit settings



Steps

a. In the Hopper Manager menu, select **Configure** → **Settings**

The **Select Object** dialogue box opens.

b. Select the indoor unit and click the Modify button

The **FIU 19 Settings - FIU 19** dialogue box opens.

c. Check that the following settings are in use

Check that

- The checkbox **In use** is checked.
- The checkbox **Outdoor unit power supply** is checked.

d. Go to step 11

4. Check the indoor unit settings



Steps

a. In the Hopper Manager menu, select Configure → Settings

The **Select Object** dialogue box opens.

b. Select the indoor unit and click the Modify button

The **FIU 19 settings - FIU 19** dialogue box opens.

c. Verify that outdoor unit power supply is off (checkbox is not checked)

5. Check that the cable connectors are tightened properly

6. Check that the connections are made according to instructions

7. Check that there are no short-circuits

This is easiest to check with a multimeter.

8. Check the used cable type

Check that it corresponds to the same standard as Nokia's recommendations.

For more information, see Technical Notes in NOLS (Nokia Online Services).

9. Check that you have performed all the needed actions during commissioning

For instructions, see *Starting the Commissioning Wizard*.

10. In the FIU 19 settings window in Hopper Manager, turn on the outdoor unit power supply (by checking the checkbox)

11. Check the outdoor unit settings



Steps

- a. **In the Hopper Manager menu, select Configure → Settings**

The **Select Object** dialogue box opens.

- b. **Select the outdoor unit and click the Modify button**

The **FlexiHopper Settings** dialogue box opens.

- c. **Check that the Tx power checkbox is checked**

12. Check that the calculated RSL (received signal level) and Rx input level were met during the link alignment



Steps

- a. **In the Hopper Manager menu, select Maintenance → Performance → Measurements**

The **Select Measurements** dialogue box opens.

- b. **Expand OU1A: FlexiHopper unit, check the Radio Interface: Rx level checkbox and click the OK button**

The **Measurements** window opens.

Further information

You can derive this information from network planning: Transmission Planner's link budget/link calculation.

13. Check that the the unit's software has been upgraded

After the new software has been activated, it is possible that the Flexbus LED continues to blink. Nonetheless, the transmission is working.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.3 FlexiHopper (Plus) cannot be used with 24 V_{DC}

Description

FlexiHopper (Plus) cannot be used directly with 24 V_{DC}.

Symptoms

FlexiHopper (Plus) cannot be used with 24 V_{DC}

Recovery procedures

Arrange a separate power supply to provide 48 V_{DC}



Steps

1. Arrange a separate 48 V_{DC} power supply

Further information

The operational voltage for the FlexiHopper (Plus) and MetroHopper radios is -40.5 V_{DC} to -72 V_{DC}. You need a separate power supply.

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.4 Forgotten Hopper password

Description

You are not able to modify Nokia Hopper Microwave Radio settings because you have forgotten the node password and the node security has been activated.

Symptoms

You are not able to modify radio settings because node security has been activated.

Recovery procedures



Contact Nokia Helpdesk

Steps

1. Contact your local Nokia Helpdesk
2. Ask for a new password

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.5 Fuse blown in Flexbus plug-in unit

Description

Flexbus plug-in unit does not work because a fuse has blown.

Symptoms

Flexbus plug-in unit does not work

Recovery procedures

Replace the blown fuse

Purpose

The purpose of the following procedure is to replace a blown fuse.



Note

Only properly trained and authorised personnel may perform installation, commissioning, or maintenance operations.



Steps

1. **Measure the fuses F1 and F2 in the Flexbus plug-in unit with a multimeter (resistance)**
2. **Replace the blown fuse**

If one of the two fuses has blown, there is one spare fuse F3. The following figure shows the location of the spare fuse (surface-mounted component) in the plug-in unit.

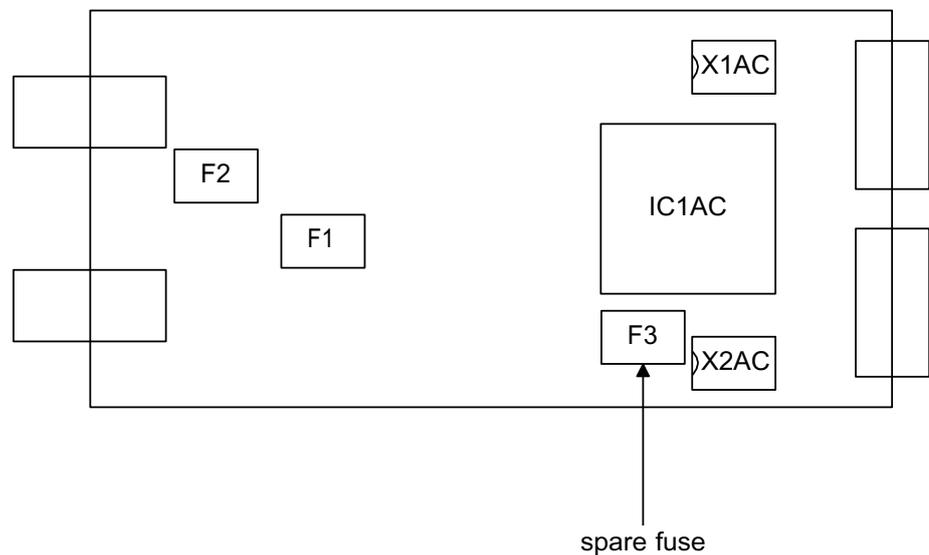


Figure 14. Spare fuse



Tip

To replace the blown fuse, you also need a soldering iron for the surface mounted device (SMD) components.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.6 Incompatibilities between Hopper Manager software and node software

Description

You receive a notification of an incompatibility problem between Hopper Manager software and node software.

The dialogue box indicates that the Hopper Manager you have does not fully support the software version of the node. It is possible that the latest node software supports some new features or improved functions that are not available in the Hopper Manager you are using.



Note

Downloading the latest Hopper Manager software is subject to a licence fee.

Contact your Nokia representative for additional information on the licensing terms.

Symptoms

You receive a notification of an incompatibility problem between Hopper Manager software and node software

Recovery procedures

Bring the new software version into use



Steps

- 1. In the notification dialogue box, click the Continue button**

If you click the **Cancel** button, the Hopper Manager connection to the node is cancelled.

- 2. Check the Hopper Manager version by selecting Help → About Hopper Manager**
- 3. Search for the latest available Hopper Manager version in NOLS (Nokia Online Services),**

You can also find this information in Technical Notes (TNs), Change Notes (CNs), or Release Notes.

4. Download the latest Hopper Manager version on your computer

Or

If you do not wish to download a new version of the Hopper Manager to your computer, read the above-mentioned documents carefully. In these documents, you can find information on new features and possible bug fixes.

Or

If you are sure that you are already using the new features supported by the new node software, click **Continue** and start configuring the node. For instructions, see *Starting the Commissioning Wizard*.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.7 Problems in downloading software to inactive software bank

Description

Problems in downloading new software to an inactive software bank.

Symptoms

The software download process stops

Recovery procedures



Erase the inactive software bank before the download

Steps

1. Check the status of the inactive software bank

To open the **Software** window, select **Maintenance** → **Software** → **View**

Check if the status of the inactive software bank is other than *valid*.

2. *If the status is other than valid (for example, *invalid* or *fail*)*

Then

Click the Erase button

3. **Wait until the inactive software bank status indicates *Empty***

4. **Restart the software download**

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.8 Rx-level from far-end not available

Description

Rx-level from far-end is not available.

Symptoms

Rx-level, identifications, and settings for far-end are disabled

2.8.1 Diagnoses

There are several possibilities, which may cause this problem:

1. The node software in the far-end indoor unit does not support far-end management.
2. Signal quality is not good enough for communication over the link.
For more information on Flexbus cable troubleshooting, see *Troubleshooting Flexbus cables*.
3. The function is not enabled in the Hopper Manager options.

Recovery procedures



Enable far-end management

Steps

1. Enable the Hopper Manager far-end management

You can enable the far-end management by ticking the **Miscellaneous** view in the *Hopper Manager* options.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.9 Software downloading order for FlexiHopper (Plus)

Description

If you have problems with a software update in FlexiHopper (Plus) 2IU + 2OU with FIU 19 (E) indoor units configuration, use the following procedures to update the node.

Symptoms

Software downloading order

Recovery procedures

Download the software in the following order

Before you start

Before downloading the software, do the following:

- Download new IU and OU software versions from NOLS
- Connect to FlexiHopper (Plus) 2IU + 2OU node with Hopper Manager, and save the settings of the units before the download (in the Hopper Manager menu, select **File** → **Save As**).

- Check and, if necessary, change the local management port (LMP) baud rate to 115.2 kBit/s; for instructions, see *Configuring network element settings*.
- After the new baud rate has been set, refresh the Hopper Manager window by selecting **Manage** → **Refresh** in the Hopper Manager menu.



Steps

1. Download the FlexiHopper (Plus) software



Steps

- a. **In the Hopper Manager menu, select Maintenance → Test → Forced Controls**

The **Forced Controls** window opens.

- b. **In the General tab, check and set forced controls timeout to 1800 s, if necessary**

In the **Control timeout** field, set the timeout to 1800 s.

- c. **In the Outdoor Unit field, select *OU1A* on RX and TX drop-down lists, and click Send**

- d. **In the Hopper Manager menu, select Maintenance → Software → View**

The **Software** window opens.

- e. **Select the inactive bank of the inactive outdoor unit OU1B, and click the Erase unit button**

- f. **Select the inactive bank of the outdoor unit OU1B, and click Download**

Specify the path for the file (which contains the new software version files) and click **Download**.

A progress bar appears at the bottom of the **Software** window.

- g. **Wait until the new software version has been downloaded**

- h. **Activate the downloaded new version by selecting the inactive bank of the inactive outdoor unit OU1B, and check the reset after activation checkbox, then click the Activate unit button**

Check that the activation succeeds.

- i. **Repeat steps a - h**

Set the forced controls to OU1B and download the software to OU1A.

- j. **Remove forced controls from the outdoor units**

In the Hopper Manager menu, select **Maintenance** → **Test** → **Forced Controls**. The **Forced Controls** window opens. Set the Rx and Tx to normal state in the drop-down list, and click **Send**.

2. Download FIU software



Steps

- a. **Check the master and slave states of FIU 19s**

In the **Equipment view**, check which IU is active. The master IU is marked with *Master* text.

- b. **In the Hopper Manager menu, select Maintenance → Test → Forced Controls**

The **Forced Controls** window opens.

- c. **In the General tab, check and set forced controls timeout to 1800 seconds**

In the **Control timeout** field, set the timeout to 1800 s.

- d. **To avoid change over while downloading and activating software, use forced controls to force traffic to master indoor unit**

In the Hopper Manager menu, select **Maintenance** → **Test** → **Forced Controls**. The **Forced Controls** window opens. Select the master IU from the **Active** drop-down list, and click **Send**.

Wait for approximately one minute to give the system time to stabilise.

- e. **In the Hopper Manager menu, select Maintenance → Software → View**

The **Software** window opens.

- f. **Select the inactive bank of the slave IU and click the Erase unit button**

- g. **Download the new software version to the slave IU's inactive bank**

Specify the path for the file (which contains the new software version files) and click **Download**.

A progress bar appears at the bottom of the **Software** window.

- h. **Wait until the new software version has been downloaded**

- i. **Activate the loaded new version into the slave indoor unit**

Select the inactive bank, check the *reset after activation* checkbox and click the **Activate unit** button.

Check that the activation succeeds.

- j. **With forced controls, move traffic to the other indoor unit**

- k. **Activate the slave indoor unit and download the new software version to the other indoor unit**

Repeat steps b - i.

- l. **Remove forced controls from the indoor units**

In the Hopper Manager menu, select **Maintenance → Test → Forced Controls**. The **Forced Controls** window opens. Set the Rx and Tx to normal state in the drop-down list, and click **Send**.

3. Check the alarms and traffic

For more information, see *Reading alarms* and *Monitoring the hop*.

4. After all units have downloaded the new software, set the node clock

For instructions, see *Setting the real time clock*.

5. Restore the original LMP baud rate

6. Reset all statistics and counters

For instructions, see *Resetting the statistics and counters*.

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.10 Licence key lost or corrupted

Description

The licence key for a network element has been lost or it has been corrupted.

Symptoms

No correct licence key

Recovery procedures



Contact Nokia Customer Service

Steps

1. Contact Nokia Customer Service for a new licence key

Further information

For more information, see NOLS (Nokia Online Services) → Care → Help Desk → Knowledge Search.

2.11 Troubleshooting Flexbus cables

Purpose

With the following method you can troubleshoot Flexbus cable problems.



Steps

1. Check the statistics using Hopper Manager

Start the Hopper Manager and read the statistics from the near-end Indoor Unit Flexbus(es) and Outdoor Unit Radio Interface(s).

2. Compare the statistics

Compare the statistics of the specified Flexbus cable and the Outdoor Unit.

If the Flexbus statistics of the indoor unit are worse than the Radio Interface statistics from the FlexiHopper (Plus) Outdoor Unit, it indicates a faulty Flexbus connection.

A damaged cable is perceived as a difference between the value of errored seconds (ES) or severely errored seconds (SES) between the Indoor Unit and the Outdoor Unit.

A faulty cable also affects availability, and therefore the comparison between total time and available time is mandatory. A suspect interval stamp in the status field of the radio interface statistics usually indicates a power cut to the Outdoor Unit.

3. Check the condition of cabling and grounding

Check the condition of the Flexbus cables, connectors, and grounding kits (if they are used).

- Pay special attention to possible water leakages into the Flexbus cable. If you find bends in the cable that are too sharp, it is possible that the tie wraps have broken down the outer cable cover.

Touch the Flexbus connectors. If the connectors are hotter than normal, there is moisture inside the Flexbus cable or there is a contact problem.

- Check that the Flexbus cables and connectors being used are approved by Nokia. You can find a list of Nokia approved Flexbus cables and connectors in product technical documentation in NOLS:

**Tip**

Technical Notes are under constant development, so check for possible updates regularly.

-
- If grounding kits are used, check also that their water sealing has been made according to ground kit manufacture instructions.

**Caution**

A faulty Flexbus cable, connector, and/or earthing (grounding) kit can break the connection or cause a failure. Replace all faulty parts with new parts.

Related Topics

Reading alarms

Functional entity: 4x2M plug-in unit, 16X2M expansion unit

- 66 AIS 2M
- 113 Buffer overflow (or underflow)
- 186 Configuration error
- 185 Connection or settings have changed
- 162 Database full
- 150 Fault in unit
- 21 Loop to interface
- 48 Loss of incoming signal

Functional entity: Aux data plug-in unit

- 240 Active alarm point
- 64 Alarm signal received
- 186 Configuration error
- 185 Connection or settings have changed
- 162 Database full

Functional entity: Ethernet plug-in unit

- 186 Configuration error
- 185 Connection or settings have changed

148 Equipment reset

99 Error rate > 1 E-3

100 101 102 Error rate >1 E-4, error rate, >1 E-5, error rate >1 E-6

103 Error rate > 1 E-7

142 Fault in installation of equipment

150 Fault in unit

21 Loop to interface

22 Loop to equipment

48 Loss of incoming signal

Functional entity: EXU

186 Configuration error

185 Connection or settings have changed

162 Database full

Functional entity: FIU 19 (E)

258 15 min G826 BBE threshold crossed

256 15 min G826 ES threshold crossed

257 15 min G826 SES threshold crossed

261 24 h G826 BBE threshold crossed

259 24 h G826 ES threshold crossed

260 24 h G826 SES threshold crossed

64 Alarm signal is received

- 113 Buffer overflow (or underflow)
- 186 Configuration error
- 185 Connection or settings have changed
- 162 Database full
- 148 Equipment reset
- 99 Error rate > 1 E-3
- 100 101 102 Error rate > 1 E-4, Error rate > 1 E-5, Error rate > 1 E-6
- 103 Error rate > 1 E-7
- 179 Far-end alarm
- 128 Fault in equipment
- 142 Fault in installation of equipment
- 137 Fault in oscillator
- 0 Fault in power supply
- 141 Forced control on
- 22 Loop to equipment
- 21 Loop to interface
- 81 Loss of frame alignment
- 48 Loss of incoming signal
- 144 Operating error
- 165 Real time lost fault
- 184 Real time updated
- 263 Statistics reset
- 23 Test mode active

25 Test generator on

262 Unavailability

Functional entity: Flexbus plug-in unit

258 15 min G826 BBE threshold crossed

256 15 min G826 ES threshold crossed

257 15 min G826 SES threshold crossed

261 24 h G826 BBE threshold crossed

259 24 h G826 ES threshold crossed

260 24 h G826 SES threshold crossed

64 Alarm signal is received

186 Configuration error

185 Connection or settings have changed

162 Database full

99 Error rate > 1 E-3

100 101 102 Error rate > 1 E-4, Error rate > 1 E-5, Error rate > 1 E-6

103 Error rate > 1 E-7

179 Far-end alarm

142 Fault in installation of equipment

0 Fault in power supply

141 Forced control on

22 Loop to equipment

21 Loop to interface

81 Loss of frame alignment

48 Loss of incoming signal

263 Statistics reset

23 Test mode active

262 Unavailability

Functional entity: NE/FE0

258 15 min G826 BBE threshold crossed

256 15 min G826 ES threshold crossed

257 15 min G826 SES threshold crossed

261 24 h G826 BBE threshold crossed

259 24 h G826 ES threshold crossed

260 24 h G826 SES threshold crossed

185 Connection or settings have changed

162 Database full

168 Equipment door open

148 Equipment reset

99 Error rate > 1 E-3

100 101 102 Error rate > 1 E-4, Error rate > 1 E-5, Error rate > 1 E-6

103 Error rate > 1 E -7

143 Fault in change-over function

128 Fault in equipment

142 Fault in installation of equipment

- 141 Forced control on
- 263 Statistics reset
- 140 Subrack has excessive units
- 139 Subrack is missing units
- 262 Unavailability

Nokia FlexiHopper (Plus) outdoor unit alarms

- 186 Configuration error
- 185 Connection or settings have changed
- 162 Database full
- 148 Equipment reset
- 179 Far-end alarm
- 128 Fault in equipment
- 142 Fault in installation of equipment
- 0 Fault in power supply
- 150 Fault in unit
- 141 Forced control on
- 59 Incoming signal level incorrect
- 22 Loop to equipment
- 21 Loop to interface
- 267 Licence expired
- 269 Licence for feature is not available
- 268 Licence will expire in near future

Related Topics

60 No incoming radio signal

45 No outgoing radio signal

165 Real time lost fault

184 Real time updated

23 Test mode active