

A healthcare professional, likely a nurse, is shown from the chest up, wearing blue scrubs and a stethoscope. She is holding a small blue device with a QR code on it. The background is a blurred hospital setting. The overall image has a blue tint.

# Troubleshooting

*Cepheid HBDC training  
2013*

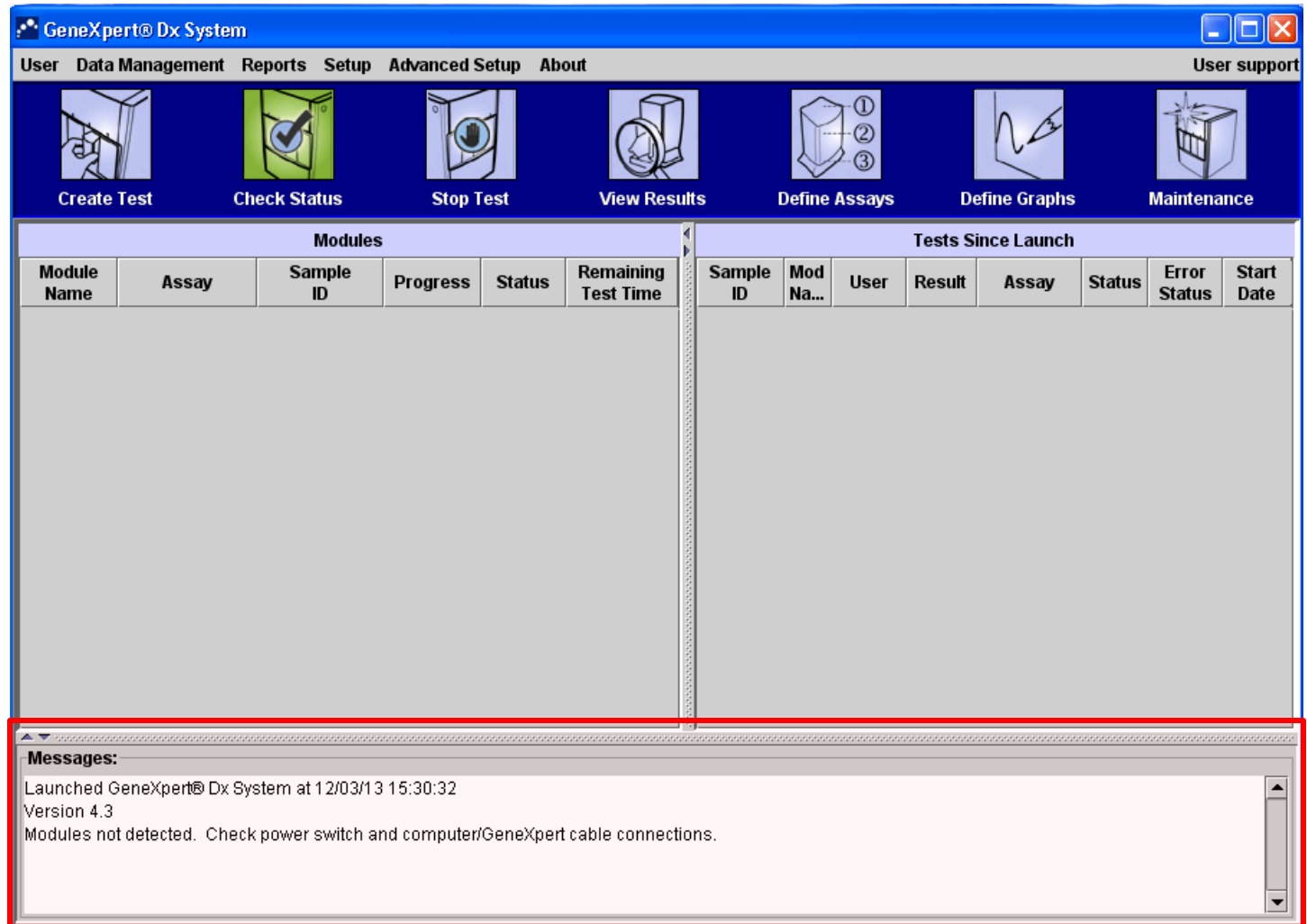
# Troubleshooting Approach

1. In case of problem, look for an error message on the screen *(pop-up windows, message box at the bottom of the screen or in the "Error" tab in the menu "View Results")*
2. Look for the error code in the GeneXpert user manual and follow the recommended corrective actions.
3. If the problem remains, contact your local service provider (if applicable) or Cepheid assistance

Service	Telephone	Email address
Technical hotline (Europe based)- Instrument errors	+33.5.63.82.53.19	support@cepheideurope.com
Technical hotline ( U.S.A based)- Instrument errors	888-838-3222, Option 2	techsupport@cepheid.com

4. Continue to use other modules in the meantime (if possible) and exclude faulty module(s) from tests *(see slides 8 & 9)*

# Where to find Error messages?



# Where to find Error messages?

The screenshot displays the GeneXpert Dx System software interface. The top menu bar includes 'User', 'Data Management', 'Reports', 'Setup', 'View Results', and 'About'. The 'View Results' menu is active, showing a toolbar with icons for 'Create Test', 'Check Status', 'Stop Test', 'View Results', 'Define Assays', 'Define Graphs', and 'Maintenance'. The 'View Results' window is open, showing a list of test results. The 'Errors' tab is selected, displaying a table of error messages. The table has four columns: '#', 'Description', 'Detail', and 'Time'. Two error messages are listed, both related to 'Error 5006: [QC-1] probe check failed. Probe check value of 152.3 for reading number 1 was above the maximum of 140.0' and 'Error 5006: [QC-1] probe check failed. Probe check value of 152.0 for reading number 3 was above the maximum of 140.0'. The 'Errors' tab is highlighted with a red box. The 'Troubleshoot' tab is also visible. The 'Test Result' tab is selected, showing a table of test results. The table has four columns: '#', 'Description', 'Detail', and 'Time'. Two test results are listed, both related to 'Error 5006: [QC-1] probe check failed. Probe check value of 152.3 for reading number 1 was above the maximum of 140.0' and 'Error 5006: [QC-1] probe check failed. Probe check value of 152.0 for reading number 3 was above the maximum of 140.0'. The 'Errors' tab is highlighted with a red box. The 'Test Result' tab is selected, showing a table of test results. The table has four columns: '#', 'Description', 'Detail', and 'Time'. Two test results are listed, both related to 'Error 5006: [QC-1] probe check failed. Probe check value of 152.3 for reading number 1 was above the maximum of 140.0' and 'Error 5006: [QC-1] probe check failed. Probe check value of 152.0 for reading number 3 was above the maximum of 140.0'. The 'Errors' tab is highlighted with a red box.

GeneXpert® Dx System

User Data Management Reports Setup View Results About User <None>

Create Test Check Status Stop Test View Results Define Assays Define Graphs Maintenance

Patient ID  
1275355.0

Sample ID  
1275355.0

Assay Xpert MTB-RIF Assay G4

Version 5

Reagent Lot ID\* 11112

Test Type Specimen

Sample Type Other

Other Sample Type

Notes

Start Time 03/07/13 20:40:17

End Time 03/07/13 21:03:16

Status Aborted

User sultuane

Views  
Result View  
Primary Curve

Test Result Analyte Result Detail **Errors** History Support

Troubleshoot

#	Description	Detail	Time
1	Post-run analysis error	Error 5006: [QC-1] probe check failed. Probe check value of 152.3 for reading number 1 was above the maximum of 140.0	03/07/13 21:02:52
2	Post-run analysis error	Error 5006: [QC-1] probe check failed. Probe check value of 152.0 for reading number 3 was above the maximum of 140.0	03/07/13 21:02:52

Views  
Result View  
Primary Curve

<No Data Available>

Save Changes Export Report Select Graphs View Test

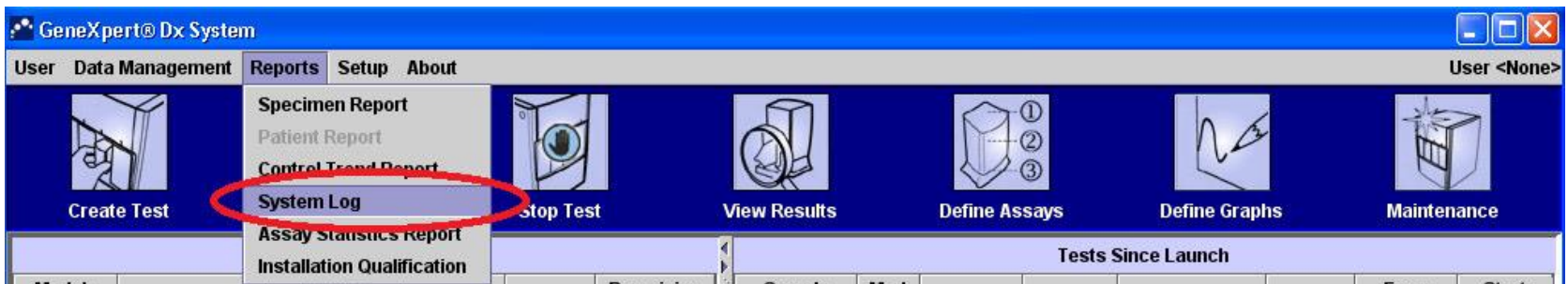
# Troubleshooting section in Operator Manual

## Chapter 9.13 in current Operator Manual

Error code	Error message	Possible causes	Solution
5007	X probe check failed. Probe check value of n for reading number m was below the minimum of p. (x is the analyte name, n, m, and p are values that the software displays. The values can vary.)	One or more of the following might have caused the error: <ul style="list-style-type: none"><li>• An incorrect amount of reagent was inserted into the cartridge.</li><li>• The reagent is bad.</li><li>• Fluid transfer failed.</li><li>• The sample was processed incorrectly in the cartridge.</li></ul>	Check the following: <ul style="list-style-type: none"><li>• Reagents are added to the cartridge correctly.</li><li>• Cartridges were stored correctly.</li></ul> Rerun the test using fresh cartridges. If the error recurs, call Cepheid Technical Support.
5008	X probe check failed. Probe check delta value n between reading number m and reading number p was below the minimum of q. (x is the analyte name, n, m, and p are values that the software displays. The values can vary.)	One or more of the following might have caused the error: <ul style="list-style-type: none"><li>• An incorrect amount of reagent was inserted into the cartridge.</li><li>• The reagent is bad.</li><li>• Fluid transfer failed.</li></ul>	Check the following: <ul style="list-style-type: none"><li>• Reagents are added to the cartridge correctly.</li><li>• Cartridges were stored correctly.</li></ul> Rerun the test using fresh cartridges. If the error recurs, call Cepheid Technical Support.

# How to obtain System Log Report

- Switch ON the GeneXpert
- Open the GeneXpert Software
- Click on « Report » then select « System Log »



- On the new windows that opens, select:
  - Date range: « All »
  - Modules: « Currently Connected Modules »
  - Show: Errors only »
  - Click on « Preview PDF »
  - Save the file and send it to Cepheid Tech Support: [support@cepheidEurope.com](mailto:support@cepheidEurope.com)

# How to obtain System Log Report

**System Log Report**

**Date Range**

☒ All  
☐ Select From  To

**Modules**

☒ Currently Connected Modules  
☐ All Logged Modules

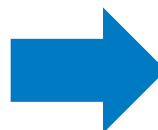
Select	Module Name	Module Serial Number
--------	-------------	----------------------

Select All Deselect All Select Highlighted Deselect Highlighted

**Show**

☒ Errors Only  
☐ All Entries

Generate Report File Preview PDF Close



GeneXpert PC 02/12/13 11:30:24

**System Log Report**

- Selection Criteria -  
Date Range: All  
Modules: Currently Connected Modules  
Module B1,B2,B3,B4.  
Show: Errors Only  
User: Byanyima Patrick

Module Name	Instrument S/N	Module S/N
B1	803498	631667

#	Description	Detail	Time	Version
1	Termination error	Error 2127: Module communication loss was detected	15/08/13 14:25:55	4.4a
2	Termination error	Error 2127: Module communication loss was detected	15/08/13 19:14:54	4.4a
3	Termination error	Error 2127: Module communication loss was detected	16/08/13 10:58:18	4.4a
4	Termination error	Error 2127: Module communication loss was detected	27/08/13 10:02:07	4.4a
5	Termination error	Error 2037: The cartridge integrity test failed at valve position 0. The pressure change of 1.8 PSI did not exceed the requirement of 4.0 PSI. The pressure increased from 2.1 PSI to 3.9 PSI during the test	28/08/13 17:56:56	4.4a
6	Termination error	Error 2037: The cartridge integrity test failed at valve position 0. The pressure change of 1.4 PSI did not exceed the requirement of 4.0 PSI. The pressure increased from 2.1 PSI to 3.5 PSI during the test	28/08/13 18:04:18	4.4a
7	Termination error	Error 2127: Module communication loss was detected	12/09/13 14:03:45	4.4a
8	Termination error	Error 2127: Module communication loss was detected	12/09/13 14:03:57	4.4a
9	Termination error	Error 2008: Syringe pressure reading of 120.2 PSI exceeds the protocol limit of 120.0 PSI	25/09/13 11:56:48	4.4a
10	Termination error	Error 2127: Module communication loss was detected	26/09/13 20:12:47	4.4a
11	Termination error	Error 2127: Module communication loss was detected	22/10/13 12:09:59	4.4a
12	Termination error	Error 2127: Module communication loss was detected	06/11/13 20:13:22	4.4a

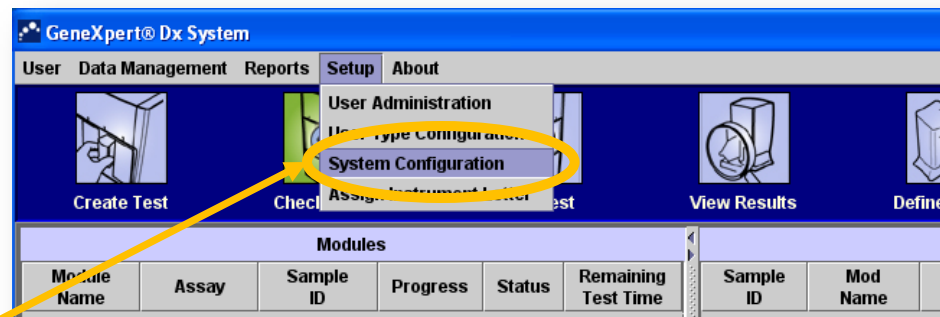
GeneXpert® Dx System Version 4.4a Page 1 of 4



# How to Exclude Module(s) from Tests

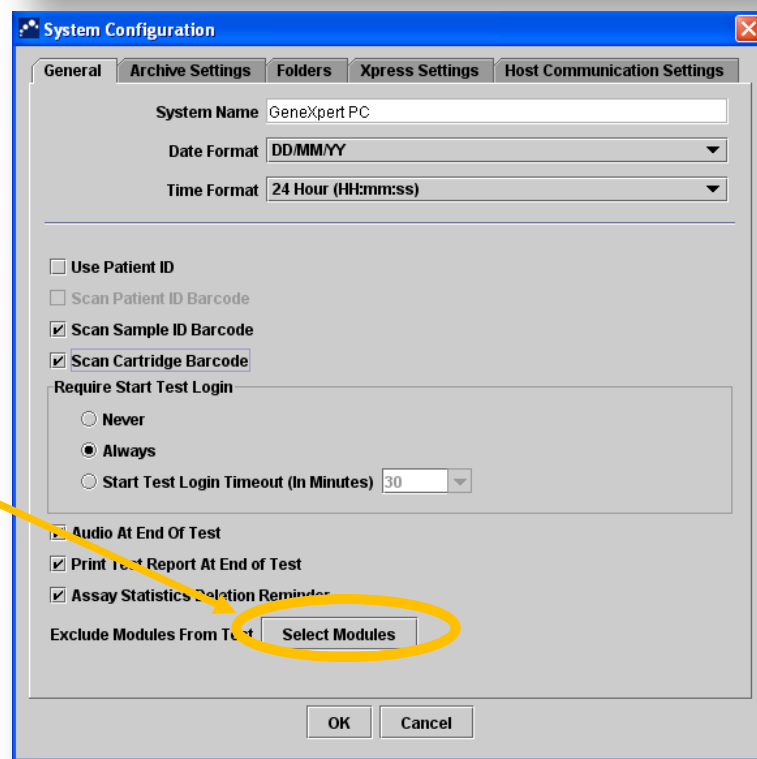
1

Click on "Setup", then "System configuration"



2

Click on the button « Select Modules »





# How to Exclude Module(s) from Tests

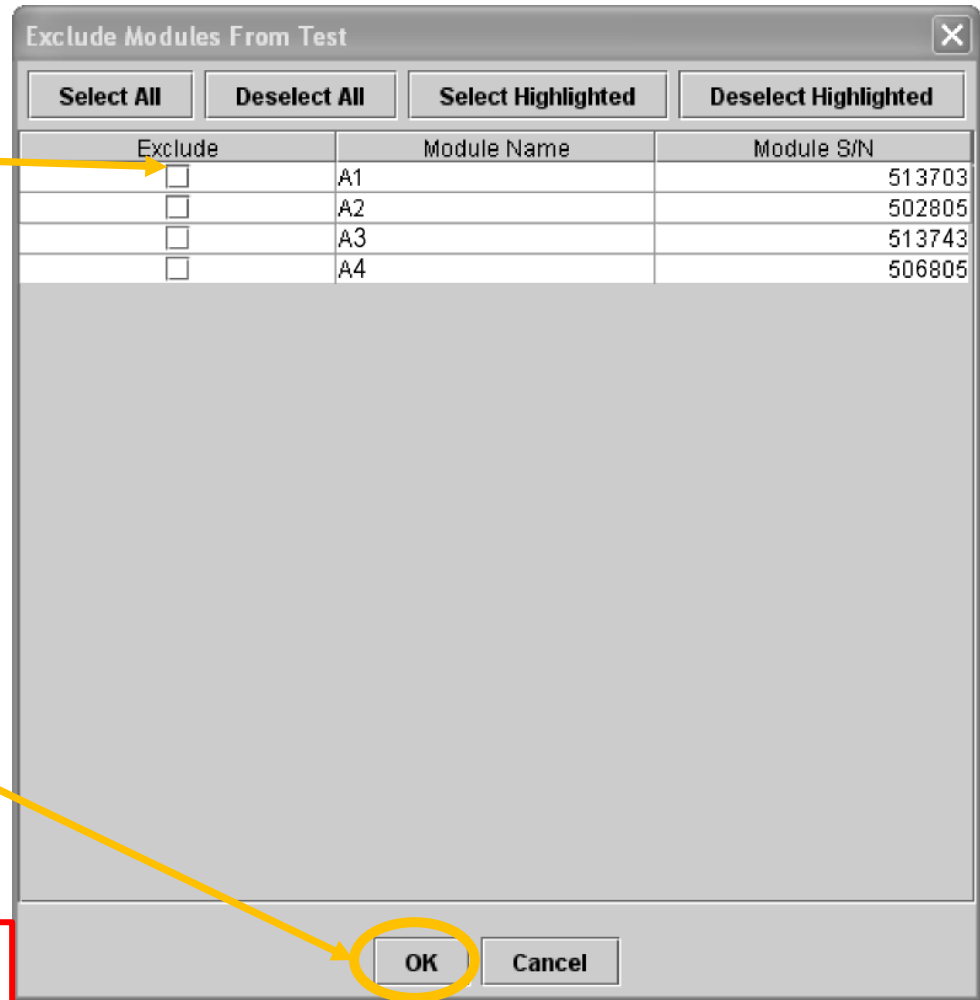
3

Select the module(s) to exclude by checking the box

4

Click on « OK »

!!! Excluded module(s) will not be usable anymore. Once the situation is back to normal, the module(s) must be removed from this list.



# Modules not detected

## Messages:

Launched GeneXpert® Dx System at 06/10/13 17:55:26

Version 4.4a

Modules not detected. Check power switch and computer/GeneXpert cable connections.

GeneXpert switched on before Computer?

Modules available in software? → [Check Status](#)

YES

Run a test

NO

1- Right Ethernet port selected (On desktop)?

Check Ethernet cable:  
Loose? or damaged?

2- IP address setting lost ?  
IP address needs to be re-  
configured: *Contact Technical support*

NO

3- Problem with LAN Port  
Computer or GX ?

4- Problem with Gateway  
board or Modules?

YES

Replug or Replace  
Ethernet cable

- Test the Computer LAN port with a printer to see if it works or not
- *Contact Technical support*

Module or Motherboard needs to  
be replaced:  
*Contact Technical support*

Run a test

# Temperature issues

Error codes: 1001, 1002, 2014, 4009 etc.

## Causes:

- A heater component in a module is malfunctioning
- Ambient temperature is not within acceptable range
- Fan failure (broken or filter is dirty)

## Solutions:

- Does this error affect only one module? Always the same?
- Check the internal temperature of the modules (*in the Maintenance menu*)
- Check room temperature (*must be 15 to 30°C*)
- Check the fan functionality (*exhaust at rear of the instrument*)
- Check the filters are clean
- Check clearance around the system (*must be 10-15 cm on all sides*)

# Stuck Cartridge

A cartridge is stuck inside a GeneXpert module

## Causes:

- Module mechanical malfunction during the test
- Electrical failure

## Solutions:

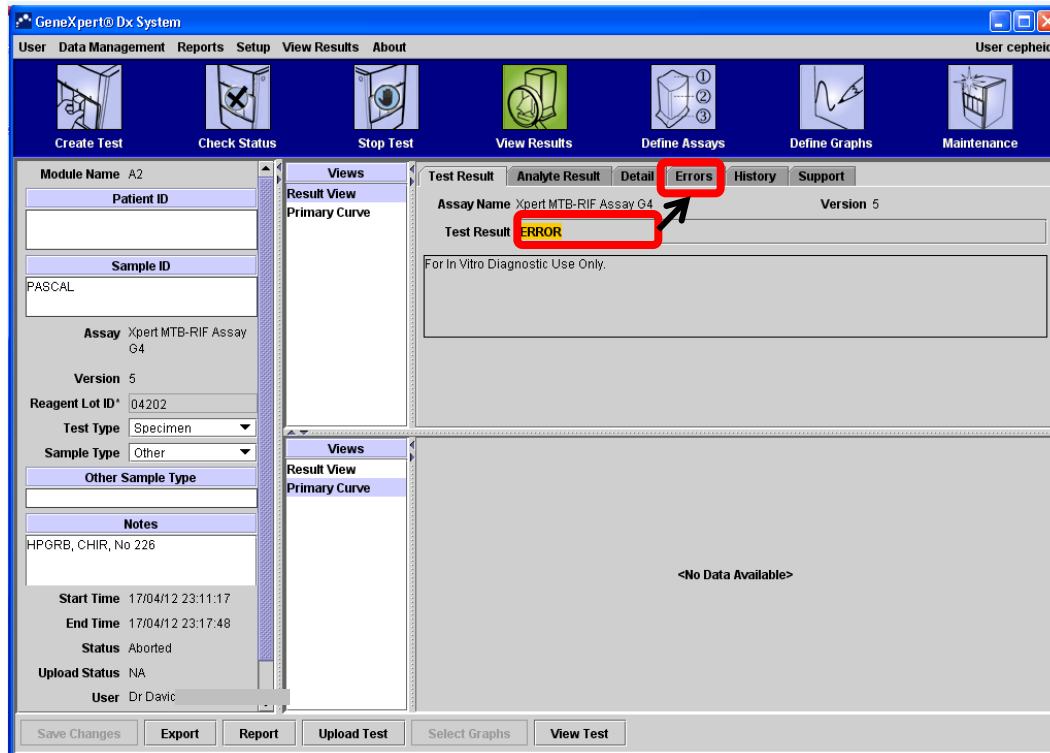
### **1 – try to remove the cartridge from the software**

- In the GeneXpert Dx window, click “Maintenance” button
- On the Maintenance menu, click “Open Module Door”
- Select the module. Click “Open Door” to open the module door.
- If the door does not open, restart the system and repeat the above steps.

### **2 – Manual removal of the cartridge**

If above steps did not solve the issue, contact Cepheid in order to be guided on how to remove module manually (detailed procedure and online support will be provided)

# Error Messages



## Cause

Many different causes can lead to an ERROR result. Click on Errors to know more about the specific issue

## Origin(s)

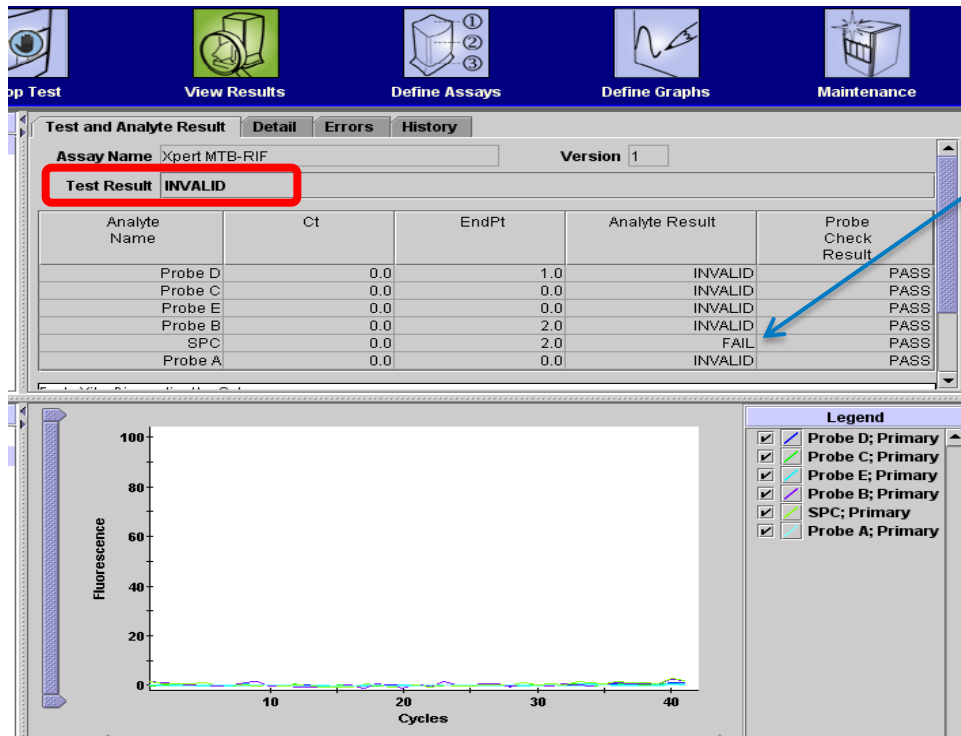
Most frequent issues, linked to sampling, are detailed in the next slides. They should be addressed by operators following the advices contained in this document

*All other issues should be reported to Cepheid technical support group*

## Solution(s)

To easily reduce an unexpectedly high Error rate, it is essential that all operators identify errors linked to sample preparation

# Results with Errors: INVALID



## Problem

SPC (Internal Control) failed

## Origin

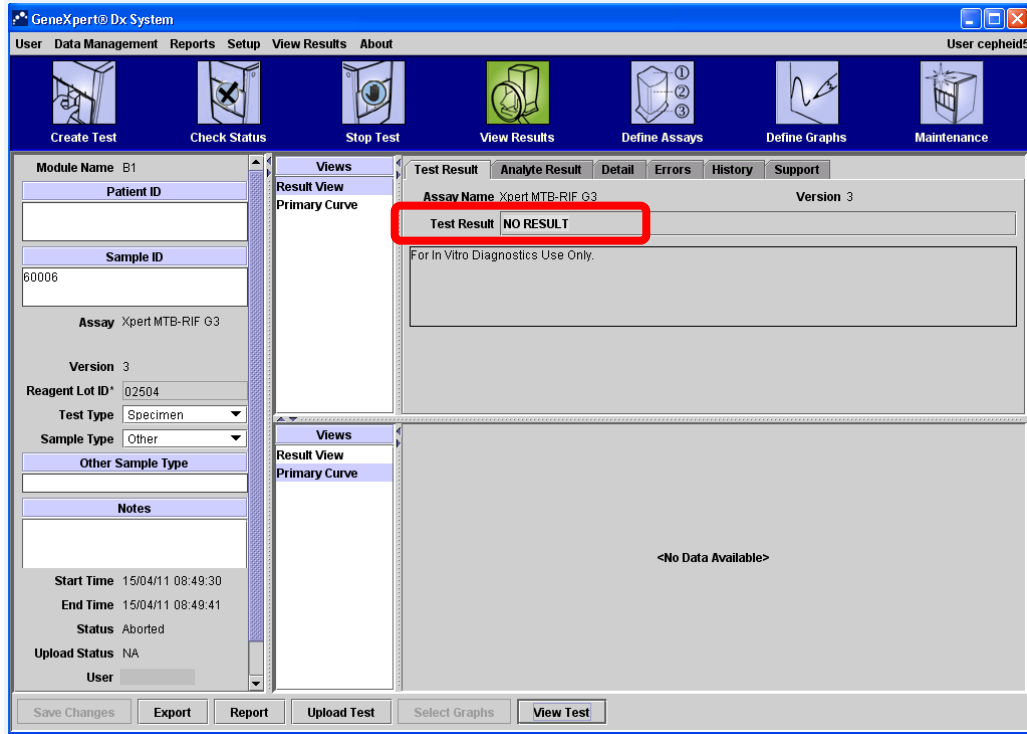
PCR was inhibited due to inhibitors (pus, food particles, ...)

## Solution

Before mixing with Cepheid sample reagent (SR) for decontamination, check that sample does not contain food particles, pus ...

Collect a new sample when necessary

# Results with Errors: NO RESULT



## Problem

Test could not be terminated and  
Insufficient data were collected

## Origin(s)

- Power failure during test
- “Stop Test” function was used.  
(accidentally or deliberately)
- Computer freeze or crash during test

## Solution

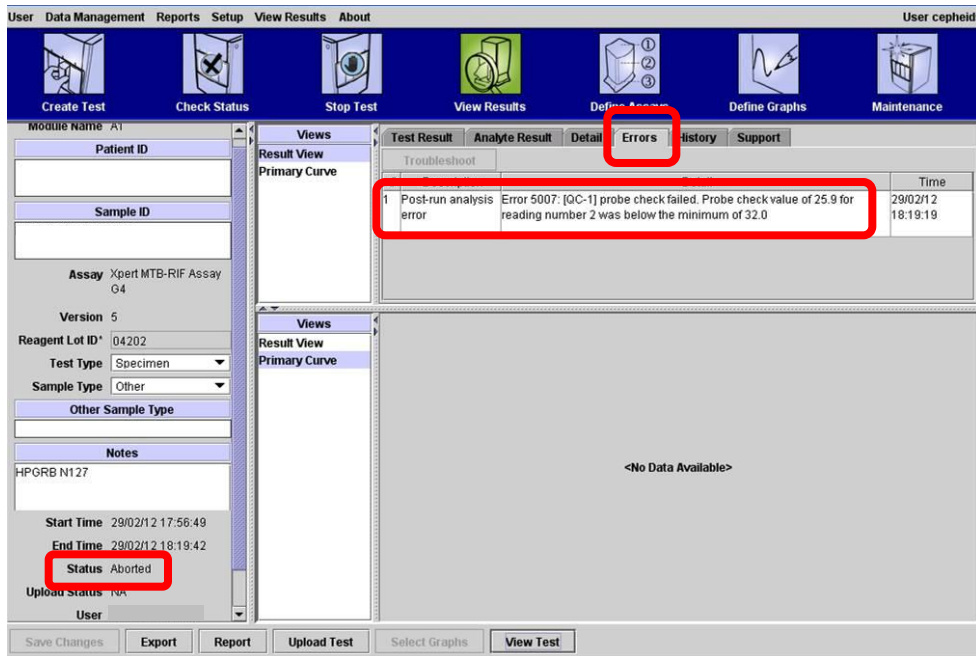
Secure the power supply.

Use “Stop Test” only when it’s necessary

Do not open other applications on the computer during tests



# Error Messages: Probe check failed: 5006/5007



## Problem

Probe Check control failed and test was stopped before amplification

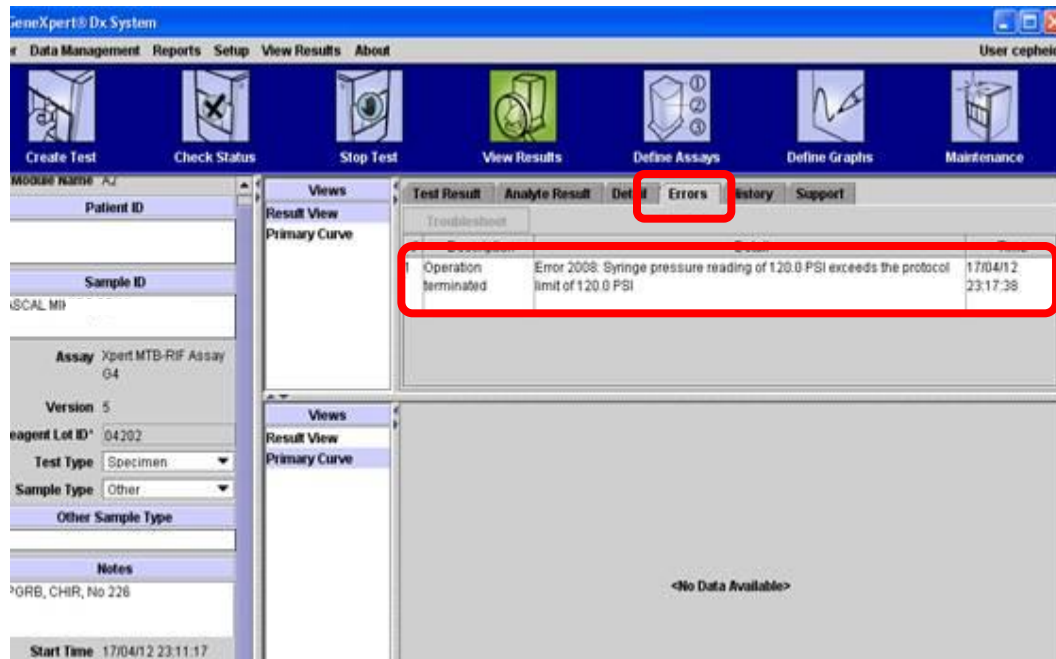
## Origin(s)

- Incorrect processing of sample (viscosity)
- Incorrect sample volume
- Improper fluid transfer (bubbles)
- Incorrect storage of cartridges (Probe integrity issues detected)

## Solution(s)

- Make sure the sample is totally liquefied before transferring to the cartridges:  
→ If after 15 minutes of incubation with Sample Reagent, sample is still too viscous do not load it into the cartridge. Wait up to 10 more minutes.
- Add from 2 to 4 mL of the preparation in the cartridges
- Avoid making bubbles
- Store the kits between 2 to 28° C

# Error Messages: Abnormal Pressure detected: 2008



## Problem

Pressure reading exceeds the maximum (2008)

## Origin

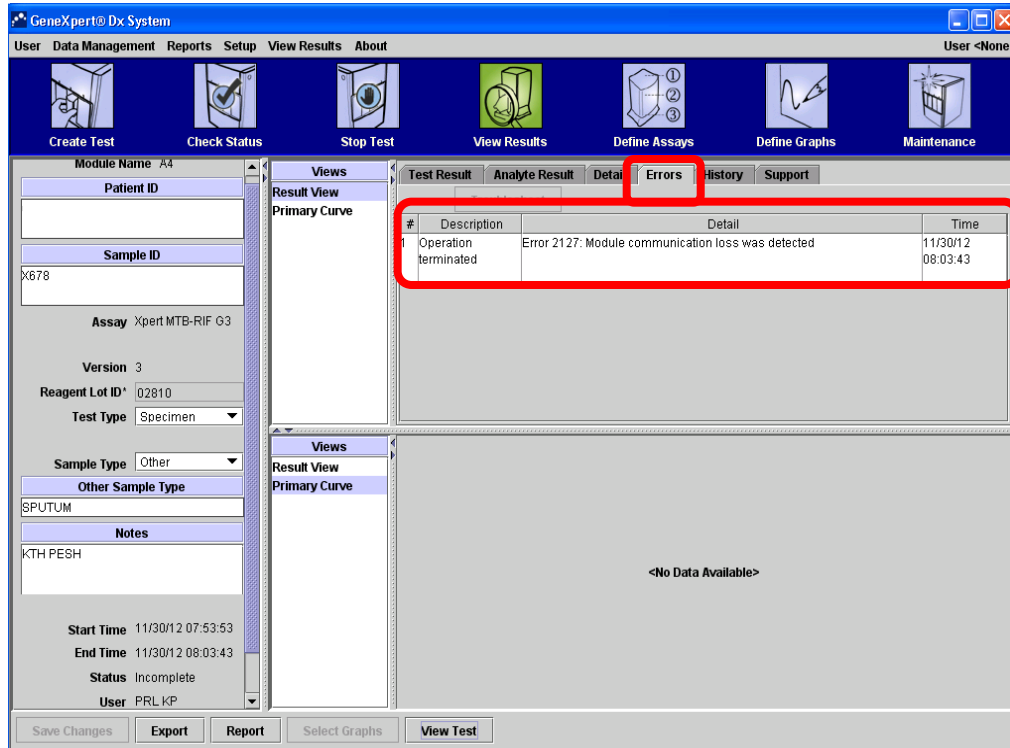
- Filter of cartridge is clogged (due to too viscous sample or particles)
- Pressure sensor failed

## Solution(s)

- Make sure the sample is totally liquefied before transferring to the cartridges:  
→ if after 15 minutes of incubation with Sample Reagent, sample is still too viscous do not load it into the cartridge. Wait up to 10 more minutes.
- Make sure sample does not contain any solid particles
- Use a new cartridge and add only Sample Reagent, if problem persists it's likely a module problem: contact Cepheid

# Error Messages:

## Module communication loss was detected: 2127



### Problem

Communication is lost between modules and software

### Origin

- Ethernet connection between PC and GX is bad
- Power supply issue (main power or UPS fluctuations)
- Bad connection points between Gateway Board and modules
- Room temperature is too high

### Solution(s)

- Unplug and replug Ethernet cable between PC and instrument, restart the system
- Unplug and replug the communication cable between gateway board and GeneXpert. Restart system.
- Secure Power supply and use adapted UPS/Surge protector
- Check Room temperature (should be below 39° C)

# Error Messages:

## Signal loss detected in the amplification curve: 5011

The screenshot shows the GeneXpert Dx System software interface. The 'Errors' tab is selected, displaying a table with one error entry. The error is highlighted with a red box. The table has columns for #, Description, Detail, and Time. Below the table, there is a graph showing fluorescence over cycles, and a legend on the right side of the graph.

#	Description	Detail	Time
1	Post-run analysis error	Error 5011: Signal loss detected in the amplification curve for analyte [Probe B]. 42.3 decrease in signal with 21.6% decrease at cycle 20.	04/25/13 23:32:03

Fluorescence

Cycles

Legend

- ☒ Probe D; Primary
- ☒ Probe C; Primary
- ☒ Probe E; Primary
- ☒ Probe B; Primary
- ☒ SPC; Primary
- ☒ Probe A; Primary

### Cause

Signal loss detected in the amplification curve.

### Origin

Loss of tube pressure because the cartridge tube is not airtight, or cartridge valve is not working right

### Solution(s)

- Make sure there is no bubbles in the reaction tube
- Use a new cartridge. If error repeats, this can be module related: modules fluidics are not working well. Contact Cepheid support team.

# Cepheid Assistance & Support

If you need help or have a question about GeneXpert please contact us

Service	Telephone	Email address
Training Center (Europe)	+33.5.63.82.5(386)/(378)/(360)	training@cepheidhbbc.com
Technical hotline (Europe based)- Instrument errors	+33.5.63.82.53.19	support@cepheideurope.com
Technical hotline ( U.S.A based)- Instrument errors	888-838-3222, Option 2	techsupport@cepheid.com

*When Contacting Cepheid, please prepare: The Serial number of the GeneXpert, the recorded error messages, the description of the incident and when possible the archived runs concerned*

Information of the system	
Serial number of your GeneXpert (at the back side, near the power button)	
Computer Service Express Service Tag Number	
Installation date of the system	... / ... / ....



Thank You.

Visit us at  
[www.cepheidcares.com](http://www.cepheidcares.com)

