Agilent 2100 Test Chip Kit G2938-68300

Using the Test Chips

Introduction

All Agilent 2100 Bioanalyzer Systems contain a software supported hardware diagnostic tool which allows the operator to test:

- all 2100 Bioanalyzer hardware components
- the instrument optics calibration
- electrical current flow

NOTE

The test results of the hardware diagnostic will either be 'passed' or 'failed'. In the Agilent 2100 Bioanalyzer Expert Software revision B.02.02 and higher, the detailed results of each test can also be seen. A 'failed' hardware test indicates a faulty hardware component and Agilent service personnel should be contacted.

The Agilent 2100 Test Chip Kit G2938-68300 contains:

- One Autofocus Test Chip
- One Electrode/Diode Test Chip

About the Hardware Diagnostic Tool

The hardware diagnostic tool is a module of the Agilent 2100 Bioanalyzer Expert Software that contains up to 12 separate tests (depending on instrument type).

There are four tests dedicated to the test chips:

- Electrophoresis Autofocus test and Laser Stability test require the Autofocus Test Chip.

- Electrode / Diode test and Optics test require the Electrode / Diode Test Chip.

NOTE The tests should not be selected separately. Certain tests can false fail when run as an individual test. Some of the remaining tests need an unused assay chip.

Selecting a Diagnostic test

- Switch to the '**Instrument**' context.
- In the '**Tree View Panel**', select the 2100 Bioanalyzer on which you want to run the tests.
- Switch to the '**Diagnostics**' tab. All available tests are displayed in the '**Available Tests**' list.
- Select the tests you want to run
- Select the **Apply** check boxes to select **Single Tests** or click **Select All** to select all available tests.

NOTE For details of the hardware diagnostic tool, please refer to the *'Troubleshooting' section of the 'Agilent 2100 User's Guide'*, which is part of the 'Online Help' for your system.

Running the Electrophoresis Autofocus Test

About the Electrophoresis Autofocus Test

Because of the mechanical play of all components, the physical position of the chip (e.g. DNA, RNA or Protein chip) in the instrument varies slightly. This slight variability must be compensated by the detection optics. For optimal performance, the optics are automatically adjusted to each individual chip.

The purpose of the Electrophoresis Autofocus Test Chip is to check the capability of the optics to automatically adjust to each individual chip. In addition the Electrophoresis Autofocus Test Chip is used to test the laser stability.

Chip Handling and Maintenance

Use the following guidelines for proper handling and maintenance of the Electrophoresis Autofocus Test Chip:

- Avoid spilling any liquid on the chip.
- Do not use a chip that has scratches on the glass surface.
- Avoid getting the chip dusty.
- Do not use a dirty chip.
- Remove the chip from the instrument immediately after use
- Store the chip in its shipping bag.
- Note the expiration date on the Electrophoresis Autofocus Test Chip.

Starting the Electrophoresis Autofocus Test

1. Start the Electrophoresis Autofocus Test as described in "Selecting a Diagnostic test" on page 2.
2. Note the '**Intensity**' and '**Offset**' values located on the Electrophoresis Autofocus Test Chip.
3. When prompted by the software, place the Electrophoresis Autofocus Test Chip in the instrument.
4. Close the lid of the Agilent 2100 Bioanalyzer carefully.
5. Enter the '**Intensity**' and '**Offset**' values in the window (written on the label of the Electrophoresis Autofocus Test Chip).
6. Click **OK**

NOTE The 'Intensity' and 'Offset' values are specific for each Electrophoresis Autofocus Test Chip.

Viewing the Results of the Test

After that test or the series of selected tests has finished the results can be reviewed. Beside the '**Passed**' or '**Failed**' message the results and the limitations can be seen in more detail. Therefore select the '**Results**' tab in the '**Diagnostic**' window.

Running the Electrode / Diode Test

About the Electrode / Diode Test

Electrophoretic separation is the basis of the RNA, DNA and protein assays of the Agilent 2100 Bioanalyzer. It requires an uninterrupted flow of electric current through the chip channels which is delivered through the 16 pin electrodes of the electrode cartridge.

The Electrode / Diode Test checks for the correct current flow of all 16 electrodes. For that reason a 'conductive' foil is used inside the Electrode / Diode Test Chip. The Optics Test is the second function of the Test Chip. Here the dark current and the stray light of the photodiodes of the Agilent 2100 Bioanalyzer are measured.

Chip Handling and Maintenance

Use the following guidelines for proper handling and maintenance of the Electrode / Diode Test Chip:

- Avoid spilling of any liquid on the chip.
- Do not use a chip that has scratches on the glass surface.
- Avoid getting the chip dusty.
- Do not use a dirty chip.
- Remove the chip from the instrument immediately after use
- Store the chip in its shipping bag.
- Note the expiration date on the Electrode / Diode Test Chip.

Starting the Electrode / Diode Test

1. Start the Electrode / Diode Test as described in "Selecting a Diagnostic test"
2. When prompted by the software, place the Electrode / Diode Test Chip in the instrument.
3. Close the lid of the Agilent 2100 Bioanalyzer carefully.
4. Click **OK**

Viewing the Results of the Test

After the test, or the series of selected tests, has finished the results can be reviewed. Beside the '**Passed**' or '**Failed**' message the results and the limitations can be seen in more detail. Therefore select the '**Results**' tab in the '**Diagnostic**' window.

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