Agilent Technologies

Using the Test Chips

General

All Agilent 2100 bioanalyzer systems contain a software supported hardware diagnostic tool. It enables the user to check:

- all individual hardware components of the Agilent 2100 bioanalyzer instrument,
- the instrument - LabChip® interface.

No help from Agilent service personnel is necessary to run the hardware diagnostic tool.

The test results of the hardware diagnostic will be either 'passed' or 'failed'. A 'failed' hardware test indicates a faulty hardware component and Agilent service personnel must be contacted.

The test chip kit, containing three different test chips, is necessary to run the complete hardware diagnostic tool. The test chips support checking the chip-instrument interface with virtually no interference by the user.

The test chip kit contains:

- Autofocus chip
- Electrode Diode Chip
- Leak Current Chips

The leak current chip has to be filled with de-ionized water, which is the only chip that needs basic pipetting.

How to Start the Hardware Diagnostic Tool

Go to the menu bar and select "Tools". Under Tools go to "Diagnose Instrument".

NOTE You must select "Autofocus Test", "Electrode/Diode Test" and "Leak Current Test" in order to invoke those tests.

For details of the hardware diagnostic tool, please refer to the 'Troubleshooting' section of the 'Agilent 2100 User's Guide' which is shipped with your system.

Using the Autofocus Chip - Autofocus Test

General

The physical position of the LabChips® (e.g. DNA or RNA LabChips®) in the instrument will vary. This is mostly due to mechanical play of all components involved. However, even a slight variability of the position of the LabChip® in the instrument, must be compensated by the detection optics. To guarantee for optimal system performance, the optics will be automatically adjusted to each individual LabChip®.

The Autofocus chip has been developed to aid checking of the optics for its ability to adjust to individual LabChips®.

Chip Handling and Maintenance

No priming of the Autofocus chip is necessary.

Note the 'Intensity' and 'Offset' values as given on the chip and start the hardware diagnostic tool. Put the Autofocus chip in the receptacle of the instrument when requested by the software. Type in:

- 'Intensity' value
- 'Offset' value

in the user interface coming up. This calibrates your Autofocus chip to the instrument.

NOTE

You only have to type in the Autofocus chip 'Intensity' and 'Offset' values. However, when using a different Autofocus chip, you must change to the appropriate values as given on the chip.

To prevent the Autofocus chip from malfunctioning, thus wrongly indicating an Agilent 2100 hardware problem, you must obey the following rules:

- after having used the Autofocus chip, place it back into it's pouch; the Autofocus chip must not collect dust,
- never scratch the glass surface of the chip,
- never spill liquid over the chip,

- dirty Autofocus chips must not be used,
- replace the chip by a new one after latest two years from first usage.

Using the Electrode / Diode Chip - Electrode / Diode Test

General

Electrically driven 'electrophoretic separation' is the basis for all Agilent 2100 bioanalyzer assays. This requires proper flow of electrical currents in and out of the chip through the electrode - chip interface. The Electrode/Diode is an easy means to individually check for proper flow of electrical currents of all electrodes.

Furthermore the Electrode/Diode chip supports checking the photodiodes of the Agilent 2100 Bioanalyzer for proper functioning.

The Electrode/Diode chip has been developed to facilitate checking for proper flow of electrical currents and proper functioning of the photodiodes,

Chip Handling and Maintenance

No priming of the Electrode/Diode chip is necessary.

Put the Electrode/Diode chip in receptacle of the instrument when requested by the software.

To prevent the Electrode/Diode chip from malfunctioning, thus wrongly indicating an Agilent 2100 hardware problem, you must obey the following rules:

- after having used the Electrode/Diode chip, place it back into it's pouch;
- the Electrode/Diode chip should be removed from the instrument directly after use,
- never spill liquid over the chip,
- dirty Electrode/Diode chips must not be used,
- replace the chip by a new one after latest two years from first usage.

Using the Leak Current Chip - Leak Current Test

Diagnostic Test

Evaporating liquid (e.g. buffer or sample matrix) can lead to deposition of salt between the electrodes of the electrode cartridge. The so called salt bridges will lead to leak currents, making a proper run of the instrument very unlikely.

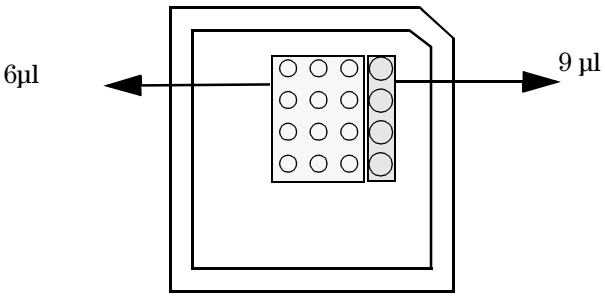
The Leak Current chip has been developed as an easy means to check for salt bridges.

Chip Handling and Maintenance

The Leak Current chip is for one time use only.

Fill all 12 channels of smaller diameters with 6µl of de-ionized water (see Figure 1). In the remaining four channels, fill 9µl of de-ionized water (see Figure 1).

Figure 1 **6µl and 9 µl wells of the Leak Current Chip**



Dispose the Leak Current chip after use.

To prevent the Leak Current chip from malfunctioning, thus wrongly indicating an Agilent 2100 hardware problem, you must obey the following rules:

- after having used the Leak Current chip dispose it
- use a filled Leak Current chip latest within 20 minutes
- make sure de-ionized water is used

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