

Technical note No. 0205. Rev. 1.2

## NucleoCounter® NC-200™

# Installation Qualification Protocol for the NucleoCounter® NC-200™ system

### Product description

The NucleoCounter® NC-200™ system enables the user to perform automated cell counting and analyses of a broad range of eukaryotic cells.

### Application

This protocol for the NucleoCounter® NC-200™ system is used for Installation Qualification.

### Introduction

The NucleoCounter® NC-200™ instrument comprises a piston actuator, sensors and electronic boards. This IQ protocol performs a series of basic operations to verify the operation of all these units. The test results are

displayed at the end of the test and grouped in two categories: OK or Failed.

### Principle

The first part of the IQ Protocol is performed without a cassette in the fixture. The first part verifies basic function of:

- Piston actuators.

The second part is performed with two IQ Cassettes and verifies the function of:

- Dot code sensor.
- USB transfer rate of the image from the instrument to the computer.
- Exposure control (e.g. camera and light).

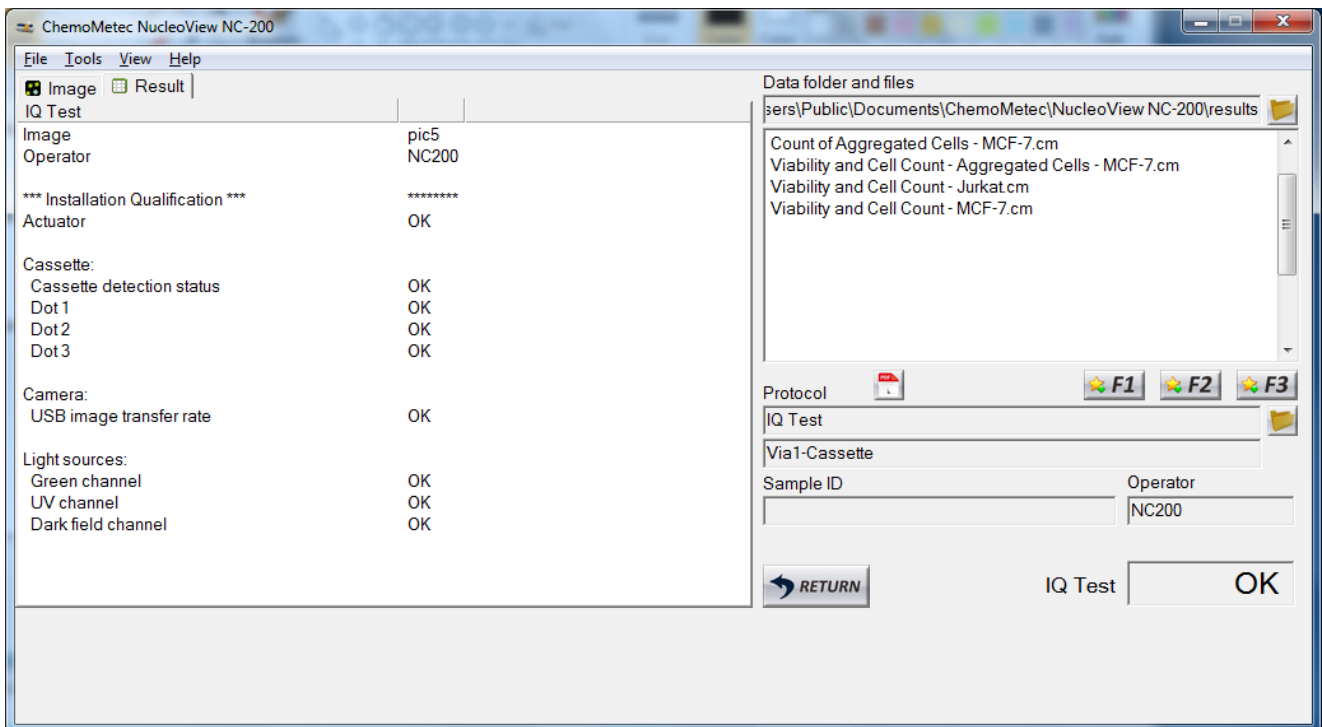
## Materials

### IQ Test Cassette 1

### IQ Test Cassette 2

## Protocol (duration is around 1 minute)

- 1) Engage NucleoCounter® NC-200™ by starting NucleoView™ NC-200 software.
- 2) Select the “IQ Test” protocol, press Run and follow the instructions.
- 3) In case of errors, error messages will occur while the protocol is working. When the protocol is completed, the result will be presented in the result tab (see below).



## IQ documentation files:

- A csv file holding all the detailed results is named with date and time (IQ\_serialnumber\_yyyymmdd\_hhmmss.csv) and placed in the verification directory as documentation for the performed IQ.

## Troubleshooting

### Failed Cassette:

If the cassette detection or any of the dot detections fail make sure that any cassettes has been removed in the first part of the IQ and the correct test cassettes has been inserted accurately before pressing “ok” when a message box prompt you to place a test cassette with one or two dots.

For inserting a cassette correctly in the fixture of the instrument simply place the cassette in the fixture and press down on the lowest part of the piston cylinder.

### Failed or limited USB image transfer rate:

If the image transfer rate from the instrument to the computer fails, it may be due to one of the following reasons:

- The computer is too slow. The minimum PC requirements are an Intel Pentium Dual core 2.4GHz, 2Gb RAM, Intel or NVidia nForce main board chipset or higher.
- The USB chipset is too slow. This is mostly observed on older computers.
- Other instruments or apparatus are connected to USB ports on the computer. The transfer speed of the USB ports depend of the total load of data transfer of the USB ports.
- Another USB cable than the provided cable is used. A long USB cable or a poor cable quality reduces the speed of the data transfer.
- The USB cable is connected to the computer via a USB Hub. Using a Hub also reduces the capability of the image data transfer from the instrument to the computer.
- A USB 3.0 port is used. USB 3.0 is the new USB standard and the development of drivers is an ongoing process. Make sure that you use the latest drivers/updates for the USB Hubs, graphic card and BIOS.

If the USB image transfer rate is limited it may also be due to one of the same reasons listed above. Running a protocol can result in the error message “Taking the camera snapshot failed”.

#### **Handling and storage**

For handling and storage of ChemoMetec instruments and reagents, cassettes and NC-Slides refer to the corresponding product documentation. For other reagents refer to the material data sheet from the manufacturer of the reagents and chemicals.

#### **Warnings and precautions**

For safe handling and disposal of the ChemoMetec reagents, cassettes and NC-Slides refer to the corresponding product documentation and the NucleoCounter® NC-200™ user's guide. For other reagents refer to the safety data sheet from the manufacturer of the reagents and chemicals required for this protocol. Wear suitable eye protection and protective clothes and gloves when handling biologically active materials.

#### **Limitations**

The NucleoCounter® NC-200™ system is FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE. The results presented by the NucleoCounter® NC-200™ system depend on correct use of the reagents, cassettes and the NucleoCounter® NC-200™ instrument and might depend on the type of cells being analyzed. Refer to the NucleoCounter® NC-200™ user's guide for instructions and limitations.

#### **Liability disclaimer**

This application note is for RESEARCH PURPOSES ONLY. It is not intended for food, drug, household, or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. The above information is correct to the best of our knowledge. Users should make independent decisions regarding completeness of the information based on all sources available. ChemoMetec A/S shall not be held liable for any damage resulting from handling or contact with the above product.

#### **Product disclaimer**

ChemoMetec A/S reserves the right to introduce changes in the product to incorporate new technology. This application note is subject to change without notice.

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