CombCam Viewer Software Manual

The CombCam is a portable measuring device for semi-quantitative evaluation of the Biogal ImmunoComb test kits. Being a portable platform, the CombCam offers an internal memory to save a large number of measurement results. If you wish to, you can extract the data appearing on the CombCam screen and save it on your PC. In order to extract the measurement data from the CombCam the CombCam Viewer software is provided. Using this software, it is possible to read every saved measurement, to transfer it to a pc and general data management functions. Furthermore, the software allows direct operation and recording of measurements.

1. CombCam Viewer installation

System requirements:

Operating system:	Windows 7 (SP1), Windows 8
Processor:	Pentium III or higher, AMD Athlon XP or higher
Main memory:	Min. 512 MB (min. 1 GB for Vista and Windows 7)
Hard disk:	Min. 1 GB free
Screen resolution:	Min. 1366 x 768

If not already installed on the PC it may be necessary to install the FTDI driver to establish a connection between reader and PC. You can find out if the driver is installed by connecting the switched-on reader with the PC via provided USB cable. If the PC recognizes the device, the driver is already installed. If the PC does not recognize it please visit the following website to download the required driver according to your system characteristics http://www.ftdichip.com/Drivers/VCP.htm

Please disconnect the device from the PC for the driver installation and do not connect the device to the computer again before the installation of the driver is complete.

After the installation has been successful the program can be started and the device can now be connected to the computer.

To run the program the file ***CombCam Viewer - X.X.XXX – setup*** must be run on the computer. The connection is only possible by using the provided USB cable. If the device is still switched off at that moment it can be switched on now.

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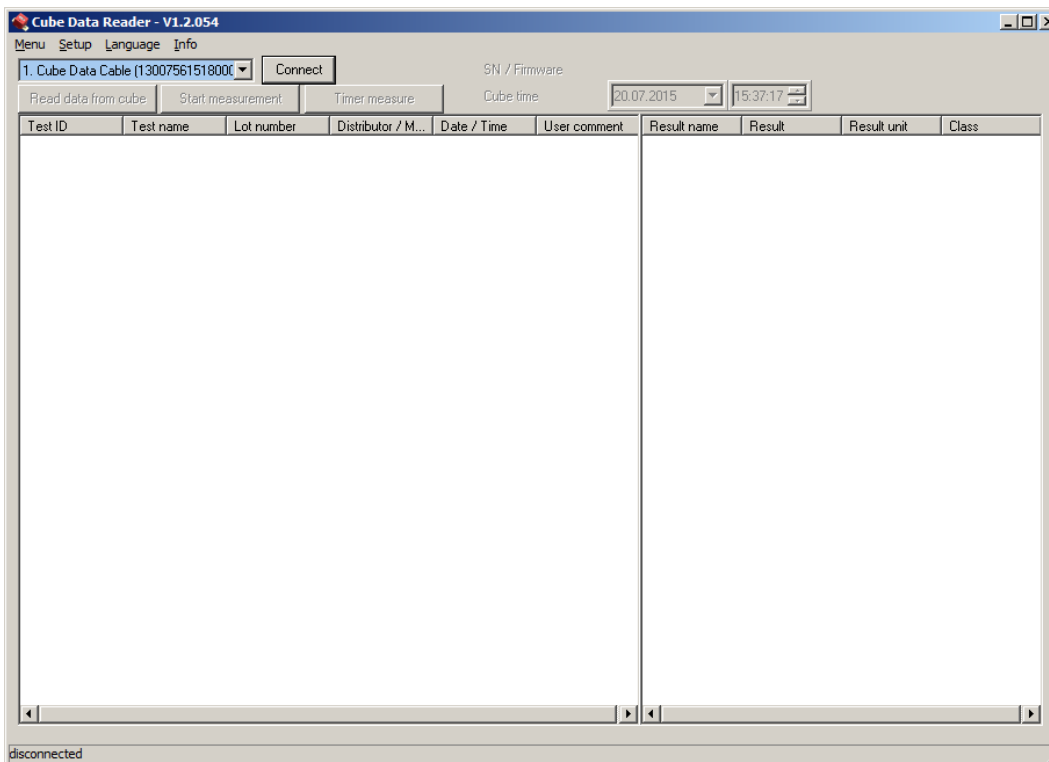After starting the software, the window shown in figure 1 can be seen.

Figure 1: CombCam Viewer

The main software consists of one tab. The major functions can be selected directly   by pressing one of the four buttons. All results will be presented in the main window as well as the results done using the remote measurement function. Additionally, the top part of the software holds a menu bar and information about the CombCam status. The bottom left side of the software window informs about the current status of the software.

2.   Connecting the CombCam

In order to extract data from the CombCam's memory or to perform remote measurements with the CombCam Viewer the CombCam has to be connected to the software first. Switch on the CombCam and connect it to the PC via the provided USB cable. As soon as the CombCam is ready for operation the software will automatically try to connect to the CombCam. This automated process is preconfigured after installing the software and can be switched off later.

If the option is turned off, it is also possible to connect the CombCam manually. Therefore, choose a CombCam from the dropdown menu at the top left side and click on "Connect".
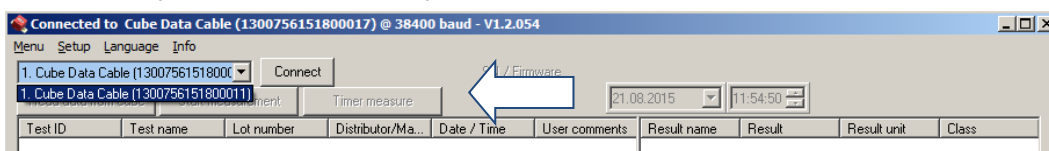

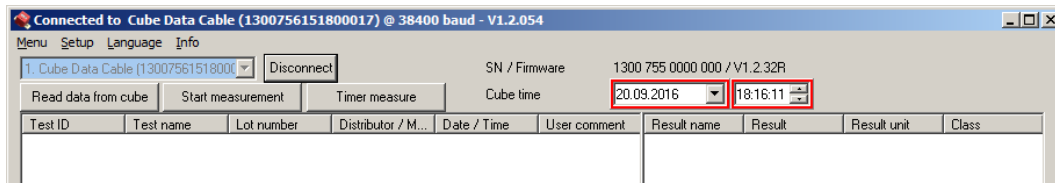**Figure 2: Drop down list**

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Figure 3: CombCam is connected successfully

The CombCam is connected successfully if the serial number in the drop down menu on the left top side fades out, the serial number and firmware version is shown on the top right side, if date and time settings are highlighted either by green or red and if the button besides the drop down menu will show "Disconnect" (Figure 2).

3. General CombCam Viewer settings

General software settings are placed in the top part of the software.

1.1 Setting date and time

After connecting the CombCam to the computer, the software automatically checks the internal clock of the CombCam and compares it with the time of the computer the CombCam is connected to. Incorrect clock settings are indicated by a red frame which can be seen on the top right side of "Figure 4: Set system time", whereas correct clock settings would be indicated by a green frame.
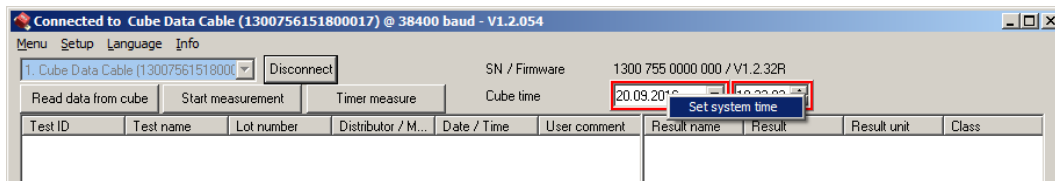

Figure 4: Set system time

To set the date and time move the cursor above the time information and right click into the information. The option to set the system time is presented. This will automatically set the system time of the CombCam according to the time of the PC. It is also possible to set the system time manually by using the drop-down menus which can be selected by clicking the buttons integrated in the frame.

1.2 Menu

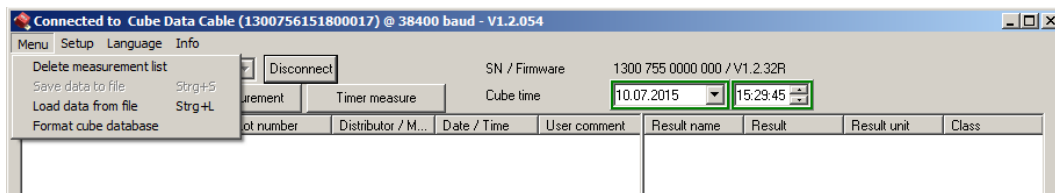*When clicking on "Menu" the following window will appear.*

Figure 5: Menu

The CombCam needs to be connected to the software, turned on and saved measurements should have been read to have all options selectable. Options available are:

- **Delete measurement list:** By choosing this option all entries in the current list will be deleted.

- **Save data to file:** By choosing this option a window will open which allows selecting a location on the local file system to save the measurement results as a *.tsv file (tabular separated values). Such a file can be directly opened with MS Excel; all information will be separated into different columns.

- **Load data from file:** By choosing this option a previously saved measurement list can be reloaded. The list has to be a *.tsv file.

- **Format CombCam ("Cube") database:** By choosing this option the CombCam's database/memory will be formatted. All data will be lost.

1.3   Setup

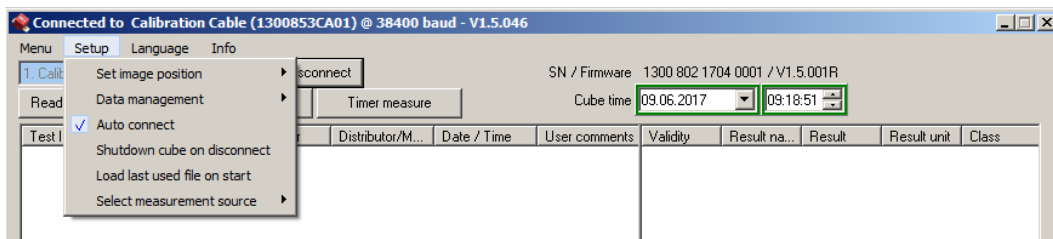When clicking on Setup the following window will appear.

Figure 6: Setup

Any option can be activated by clicking on it. Activated options are indicted by check marks [✔]. Options available are:

- **Set image position:** When doing a manual measurement by choosing "Start measurement" from the main window, this option determines where to place the picture of the 2D volume diagram in conjunction with the result list. Three different locations can be selected, it is also possible to deactivate this information by choosing "Do not display image".
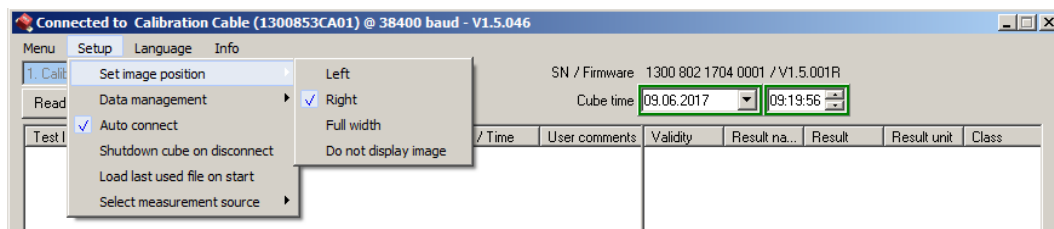
Figure 7: Set image position options

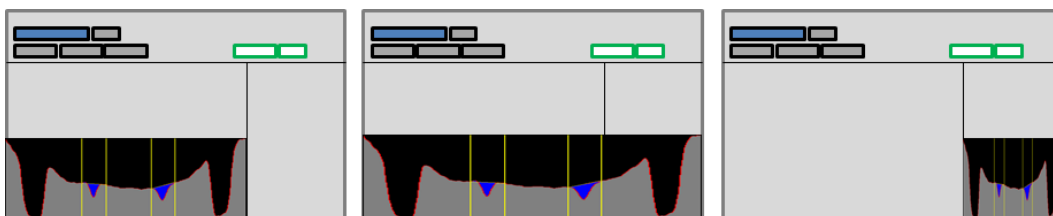Possible image positions are the following.

Figure 8: Image positions; Left, Full width and Right

- **Data management:** This option allows choosing how the CombCam Viewer will proceed with new data either just measured or downloaded, if there is already data in the list.
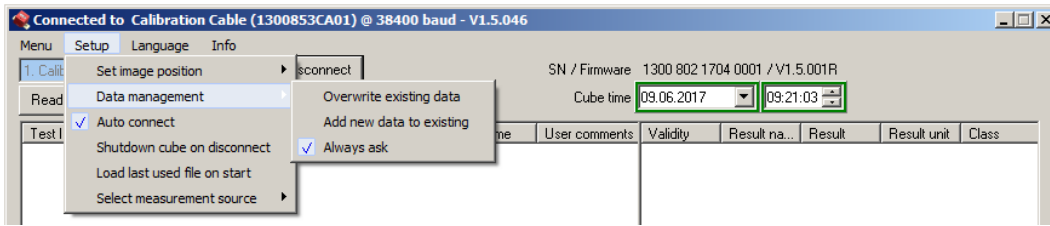
Figure 9: Data management

The following options can be selected:

- o **Overwrite existing data:** By choosing this option all entries in the list will be deleted when adding new data either by doing a remote measurement or by adding data from another CombCam.
- o **Add new data to existing:** By choosing this option all entries in the list will remain when adding new data either by doing a remote measurement or by adding data from another CombCam.
- o **Always ask:** The user will always be asked how to manage new data. The user can choose between adding the data and overwriting the existing data.

- **Auto connect:** By choosing this option the user can decide whether the software shall automatically connect to the CombCam or if the connection shall be done manually.

- **Shutdown CombCam on disconnect:** By choosing this option the CombCam gets deactivated when being disconnected from the software.

- **Load last used file on start:** By choosing this option the recently saved measurement list will be restored when restarting the software.

- **Select measurement source:** By choosing this option the source for loading the test-specific configuration for a remote measurement can be selected.
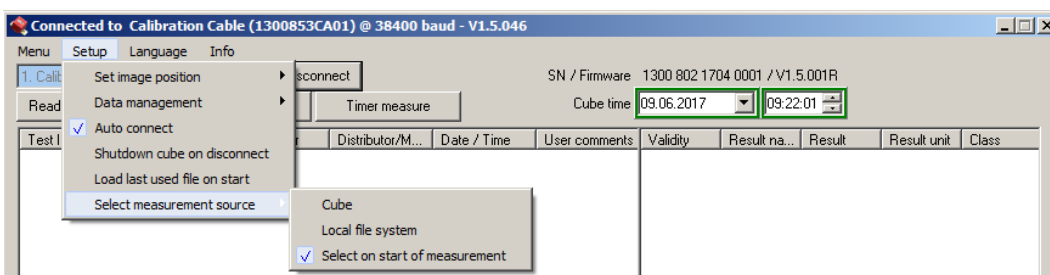

Figure 10: Select measurement source options

The following options can be selected:

- o **CombCam:** The test-specific configuration will be loaded through the CombCam by using an RFID card.
- o **Local file system:** The configuration must be selected from the local file system.
- o **Select on start of measurement:** The user will always be asked when a measurement is started which of the above option they want to choose.

1.4   Language

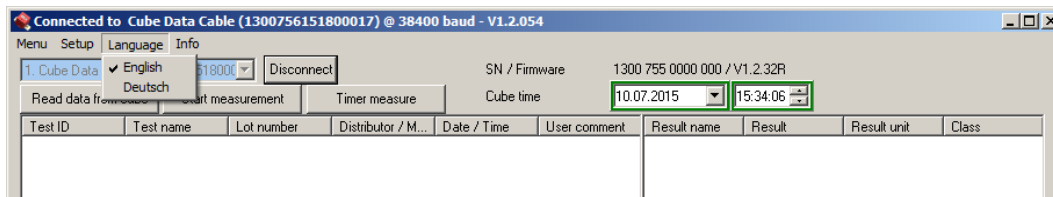When clicking on Language the following window will appear.

Figure 11: Language

This feature will allow changing the language of the software. Currently only the English and German versions are available.

1.5   Info

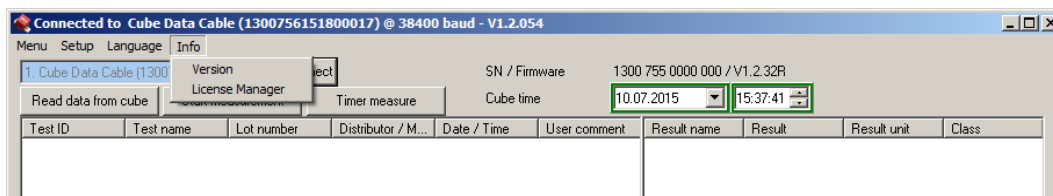When clicking on Info the following window will appear.

Figure 12: Info

This feature holds two options: **Version** and **License Manager**.
By choosing **version**, the software shows the current version including the confirmation of validity and the information how long it will be valid. The **License Manager** informs about all installed licenses.

1.6   Information on bottom bar

The bottom bar of the software holds information about the status of the software, e.g. if it is transmitting data or measuring.
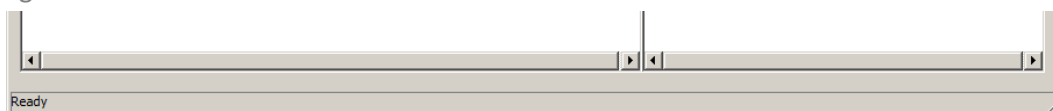

Figure 13: Bottom bar information

4. Reading data from memory

To read measurement data from the CombCam the device has to be successfully connected to the CombCam Viewer. By clicking the button "Read data from CombCam" the software will read the memory and display every saved measurement result.
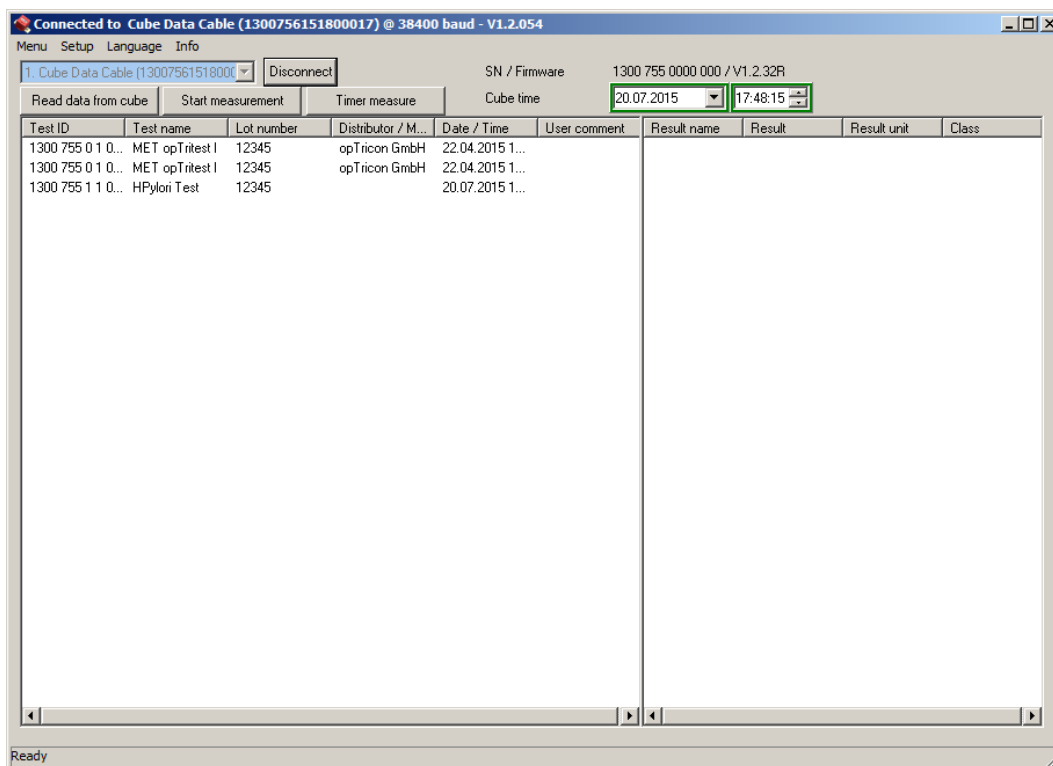

Figure 14: Saved measurement data

The result display is separated into two parts. The first part, left window, lists all measurements using the OEM information defined in the configuration. The list contains information about the Test ID, which is a unique number added by the CombCam to each measurement result, Test name, Lot number, Distributor/Manufacturer and Date/Time. The sixth column is meant for "User comments" allowing adding a comment manually. This can be done with every entry listed.

It is possible to sort the entries in alphabetical or value dependant matter. This can be done with every column.

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By clicking on one of the entries, the actual result values will be presented in the second list on the right side of the window. The second list will show the Result name, the actual Result, the Result unit and the Class if defined in the configuration file.
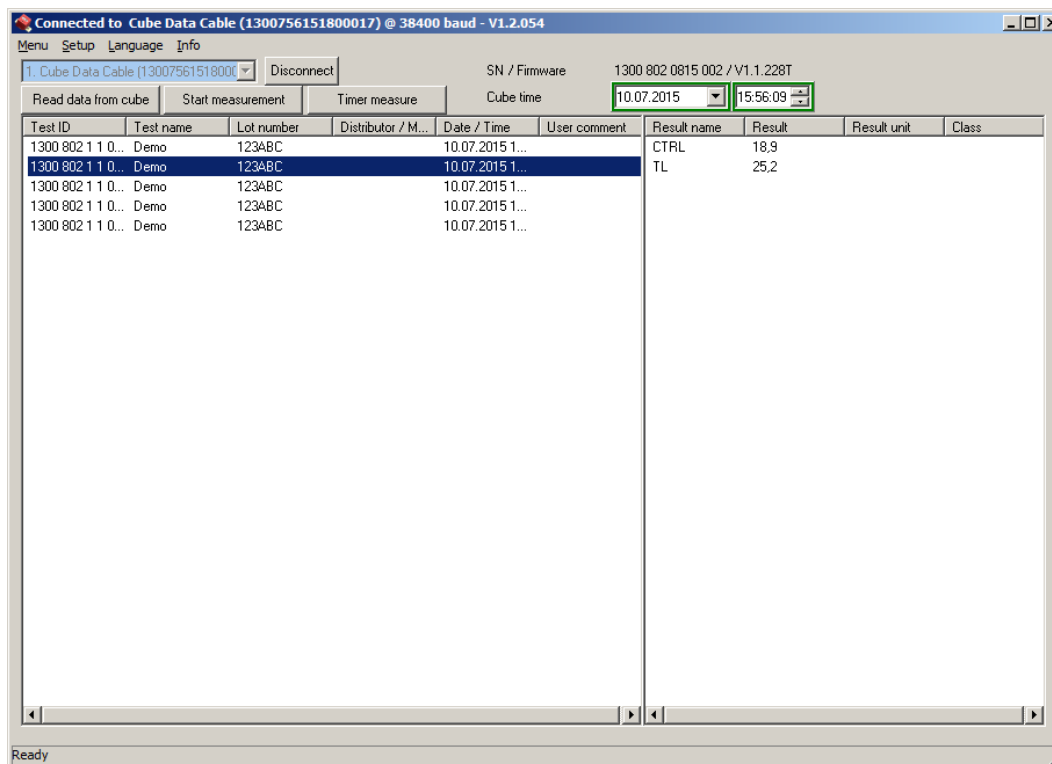

Figure 15: Result details; result values

It is possible to sort the entries in alphabetical or value dependant matter. This can be done with every column.

1.7   Adding a user comment

To add a user comment double click into the measurement list on the entry intended to add a comment. A window will open where the comment can be added.
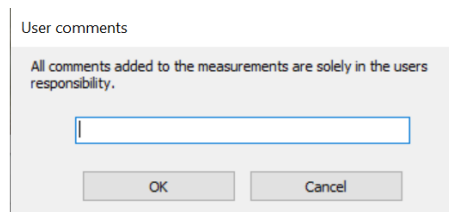

Figure 16: Adding a user comment

After hitting "OK" the comment will be automatically added to the list.

All comments added to the measurements are solely the user's responsibility.

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5. Manual direct measurement

The CombCam Viewer allows direct measurement while the CombCam is connected.

In order to start a manual direct measurement just click on the "Start measurement" button, besides the button "Read data from CombCam".

If the option is activated to select the measurement source of the test-specific configuration on start of measurement (Setup -> Select measurement source -> Select on start of measurement ✔ ; 1.3 Setup), the first window will ask to select the source for loading the configuration.
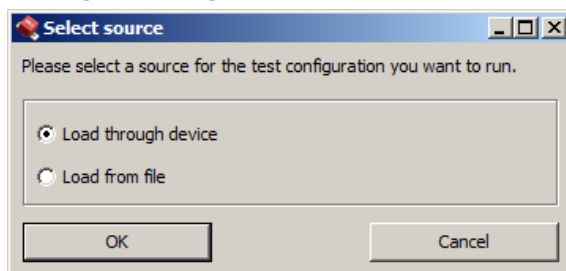

Figure 17: Select source

If the option is activated to always ask if new measurement results shall be added to the list or overwrite the list (Setup -> Data management -> Always ask ✔ ; 1.3 Setup), the next information window presented will ask how to process the measurement result considering the list already includes data.

If *"Load from file"* or *"Setup / Select measurement source / Local file system"* was selected the third step will be a browser window to select the configuration for measurement from the local system. Put the test in position for measurement below the CombCam and select the configuration; the measurement will be started immediately after selecting the configuration (next window see Figure 18).

Be aware if the overwriting function is activated the already listed data gets lost if not saved as soon as the new measurement starts. Make sure to have the data saved.

If *"Load through device* or *"Setup / Select measurement source / CombCam"* was selected instead the third window will ask to put the CombCam above the test and to hold the RFID tag above the CombCam.

If the options "Always ask" and "Select on start of measurement" are disabled this information will be the first one when selecting a manual remote measurement.

The RFID information will be loaded into the access memory of the CombCam. Every current condition is also shown in the display of the CombCam, in this case "RFID".

After the RFID information has been loaded the CombCam starts the measurement. This is indicated by the following information:
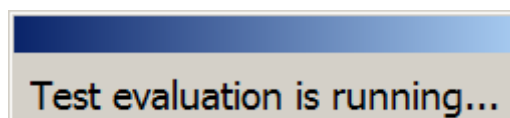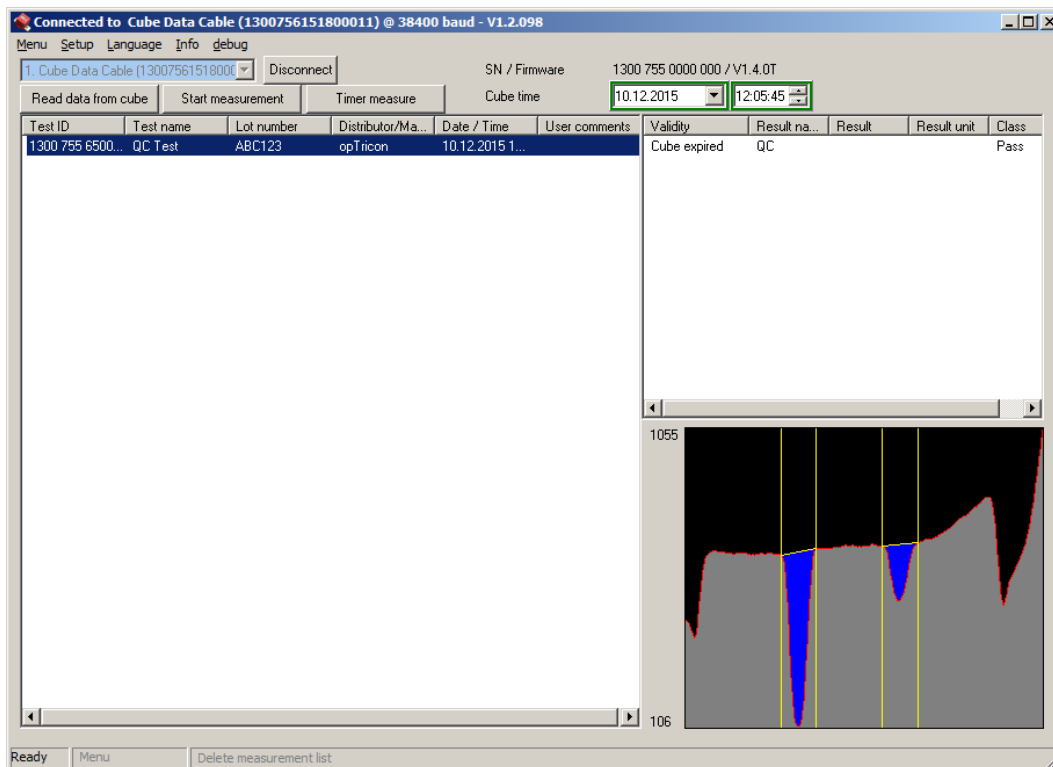

Figure 18: Measurement in progress

When the measurement is done, the results will be added to the list and the 2D volume diagram will be presented at the position determined in 1.3 Setup.

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Figure 19: Measurement result is presented

The data can now be saved to a file. The file will be in *.tsv format. The *.tsv file can be opened with Excel and the data can be used for record.

For further assistance please contact your local Distributor, or Biogal Galed Laboratories directly by E-mail: info@biogal.co.il or by Tel: 972-4-9898605.