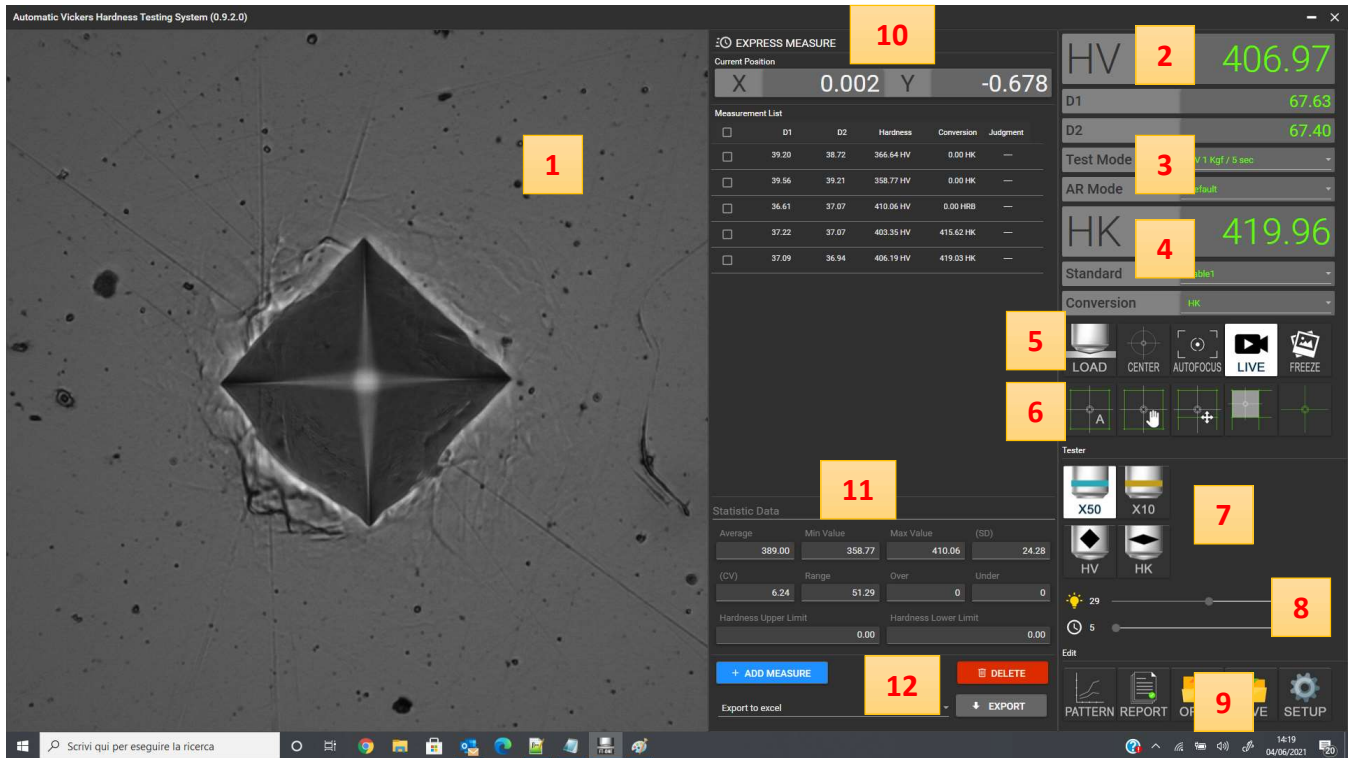


# ARGO

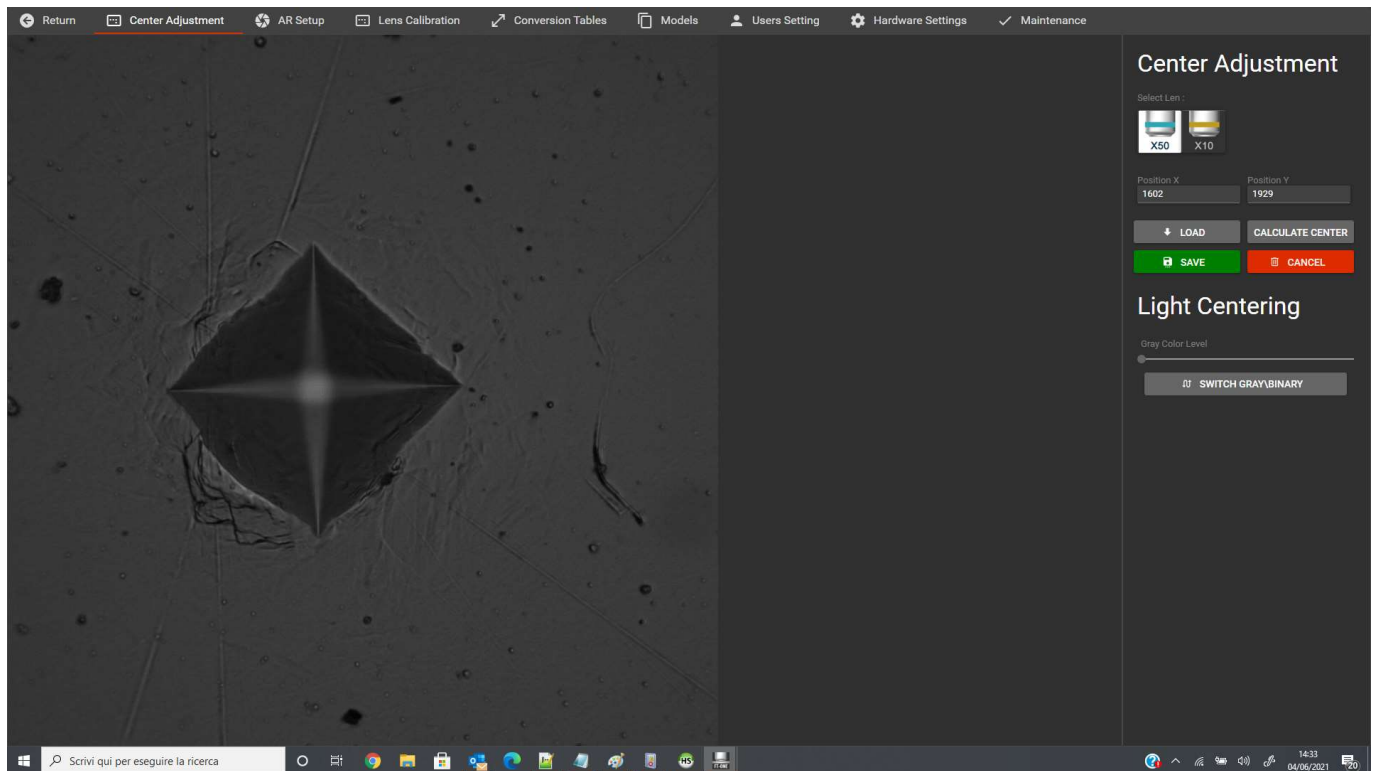
## QUICK START GUIDE

### MAIN SCREEN



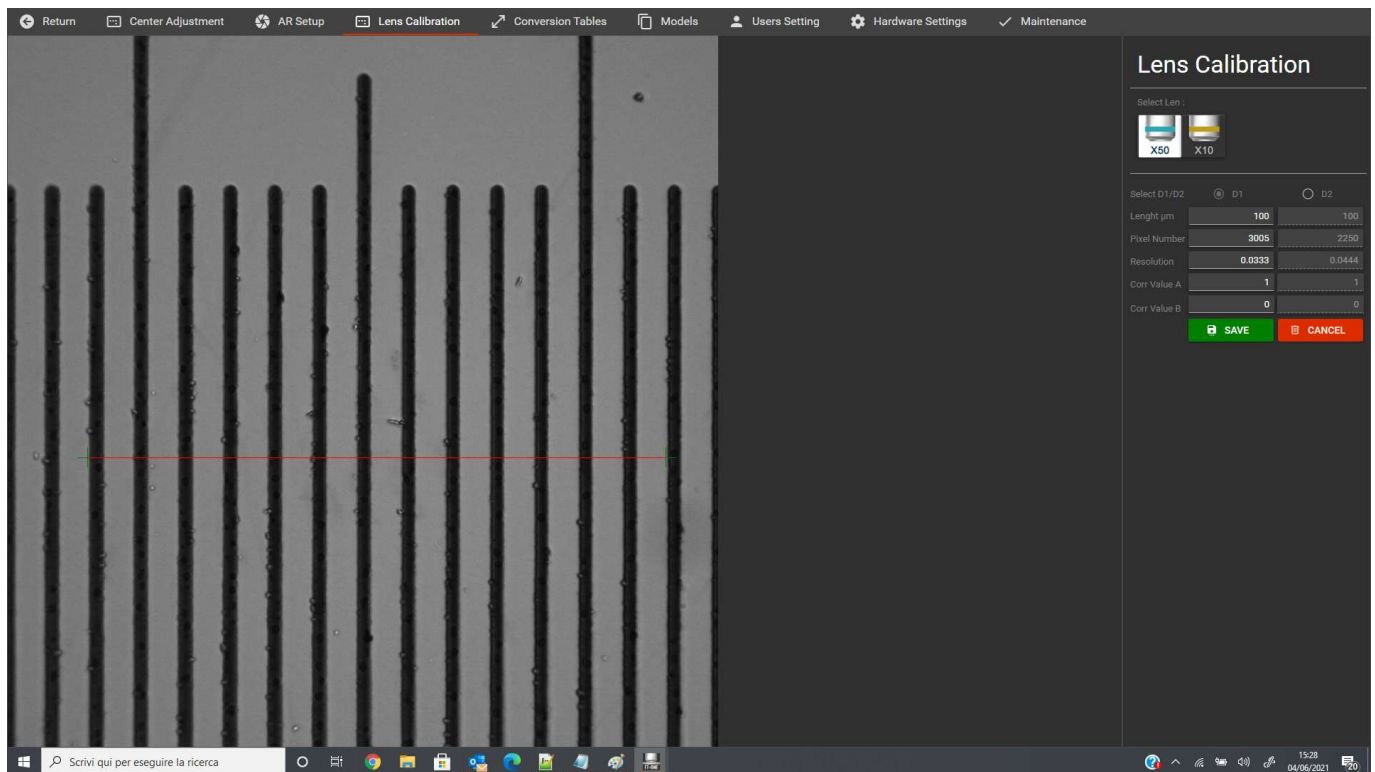
- 1: Camera Window. It displays the live image or frozen image according to the selection in the side menu (5).
- 2: Selection and display of the Test method .
- 3: Selection of the AR Mode (edge detection parameters) and selected load (from the hardness tester).
- 4: Selection and display of the Conversion scale
- 5: Tester and Camera command section
- 6: Auto or Manual reading section and ROI (Region Of Interest) setup
- 7: Turret control section (lenses + indenters)
- 8: Light and dwell time control section
- 9: Sub-menu selection (Patterns, Reports, Images and General Setup)
- 10: Instant measure window
- 11: Statistic data display and setup (referring to Express measurements list)
- 12: Save and Export section for Express measurements list

# ARGO SETUP CENTER ADJUSTMENT



- 1: For indenter center adjustment select the lens, then make an indent by pressing (LOAD) and then press (CALCULATE CENTER). If the indent is measured correctly and the cross will be placed in the correct center position, click (SAVE).
- 2: For Light centering, switch from gray to binary image by pressing the (SWITCH GRAY\BINARY) and then adjust the gray saturation. In this way the light position can be properly adjusted on the tester. The light should be adjusted in a way that the surface and the indent would be evenly illuminated. Some uncentered dark areas would negatively influence the indent correct edge detection.

# ARGO SETUP LENS CALIBRATION



- 1: Select the lens to be calibrated.
- 2: Select the axis to be calibrated (D1 for X-Horizontal and D2 for Y-Vertical).
- 3: Place a stage micrometer in focus and align it on the axis to be calibrated.
- 4: Input the length (distance) that you want to measure on the stage micrometer.
- 5: Move the edges of the line to the desired position by click and drag with the mouse.
- 6: Make the same operation for the other axis.
- 7: Once the resolution fields are populated, press (SAVE) to store the calibration
- 8: A correction value can be input for both axes. Corr Value A is a multiplying factor (1= no correction), Corr Value B is a fixed correction amount (in Pixel) to be added or removed (0= no correction).

# ARGO SETUP

## USER SETTINGS

Return Center Adjustment AR Setup Lens Calibration Conversion Tables Models Users Setting Hardware Settings

### User List

Name	Username	Role
Administrator	admin	Administrator
End User	user	End User
Form	Form	End User

### User Details

Setup

Name \* Administrator Username \* admin

Password \* \*\*\*\*\* Repeat Password \* \*\*\*\*\*

Preferred Language English Role Administrator

Voice Control Theme Dark Theme Light

Main Text Color

Keyboard Controller

LOAD READ LIVE

Unused Unused Unused

SAVE DELETE USER

### User Customization

User Application Settings

Report folder destination C:\Users\AC\AppData\Local\arx\repository SELECT

Image folder destination C:\Users\AC\Documents\ARX SELECT

Save Report Images

Test Report Custom

Line 1

Line 2

Line 3

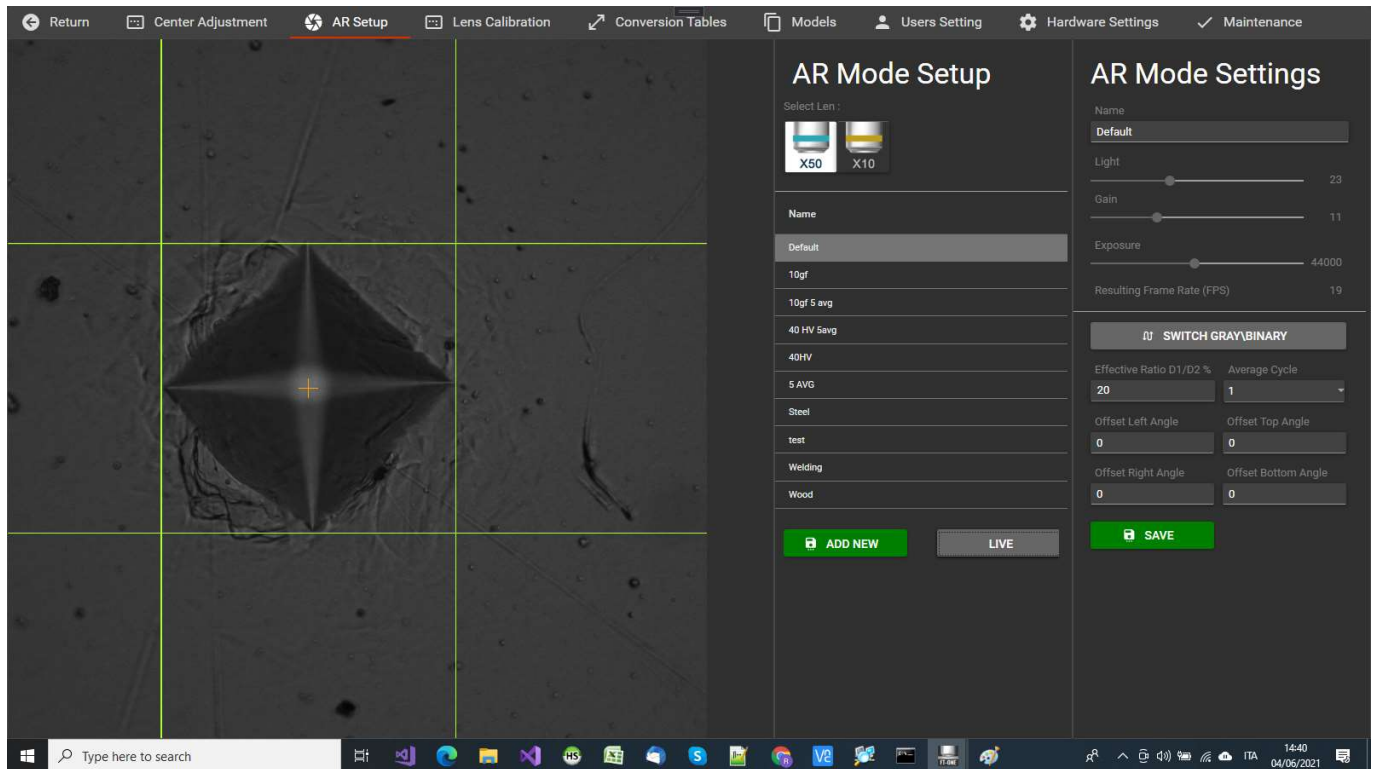
Line 4

Line 5

- 1: Select or add (by pressing the + button) a user in the User List
  - 2: In the User Details section define the user name, role, password and desired personalizations (background and display colors, keyboard, etc.)
  - 3: In the User Customization window, define the preferred application settings, such as the preferred folder for report and images data saving, and the text lines for customized report layout.
  - 4: Once all the parameters are selected, press SAVE to store the new User and preferences
- NOTE: The changes take effect after the program restart!

# ARGO SETUP

## AR MODE



- 1: Select the lens to be adjusted for edge detection.
- 2: The Default Setup can be changed or a new AR Mode can be added by (ADD NEW) button
- 3: Adjust Light, Gain and Exposure in a way that your sample indent will be clearly defined along all the edges (please click on SWITCH GRAY\BINARY to have a better view).
4. Press TEST button to check the correct reading of the edges.
- 5: If needed, an offset value (in pixel) can be added to each edge to move the calculated edge point.
- 6: The edge detection can be increased from 1 to 3 or 5 cycles to improve the precision (it makes the calculation slower)
- 7: The effective ratio % means the tolerance allowed for the difference between D1 and D2. If the calculated diagonal size exceeds that tolerance, the edge detection lines will be displayed in RED instead of GREEN. (Default is 5%).
- 8: The Resulting Frame Rate (FPS) shouldn't be lower than 18 to get a smooth live image.
- 10: Press SAVE to store the AR mode parameters
- 11: An unlimited number of AR setup can be stored and selected in the main screen or in the Pattern settings.
- 12: The Default settings can be modified but cannot be canceled

# ARGO SETUP HARDWARE SETTING

The screenshot displays the ARGO Hardware Setup software interface, which is divided into four main panels. The top navigation bar includes links for Return, Center Adjustment, AR Setup, Lens Calibration, Conversion Tables, Models, Users Setting, and Hardware Settings (which is currently selected).

- International Panel:** Contains fields for Sensor Name (myBlueFOX3-2205G), Serial Number (FF006134), License Key (JuvfhPIOGllwUJP3Zqa1XlQR2uwr9wZaOA9ZfIOU=), Unit Of Length (mm), Display Time (0), Unit Of Weight (gf), Backup database (Active backup checked, Delete backup after 30 days), and Backup Folder destination (SELECT button). A green SAVE button is at the bottom.
- Hardness Tester Panel:** Contains Hardness Configuration settings. Tester Model is FV810/FM810/HSV-810, Auto Turret is Used, Auto Stage is Unused, Digital Micrometer is X/Y-Axis, Indenter Type is HV, Indenter Diameter is 1, Lens is x50, and Test Load is 5 gf.
- Communication Panel:** Contains Hardness Host Communication settings. Type is Type 2, Com Port is COM7, Baud Rate is 9600, Parity is None, Data Bits is 8, Stop Bits is 1, and Flow Control is None. It also includes settings for Digital Micrometer 1 (COM3, 2400, None, 8, 1, None) and Digital Micrometer 2 (COM6, 2400, None, 8, 1, None). RS-232C settings are Baud Rate 9600, Parity None, Data Bits 8, and Stop Bits 1.
- Control Box Panel:** Contains a Joystick setup field set to Unused.

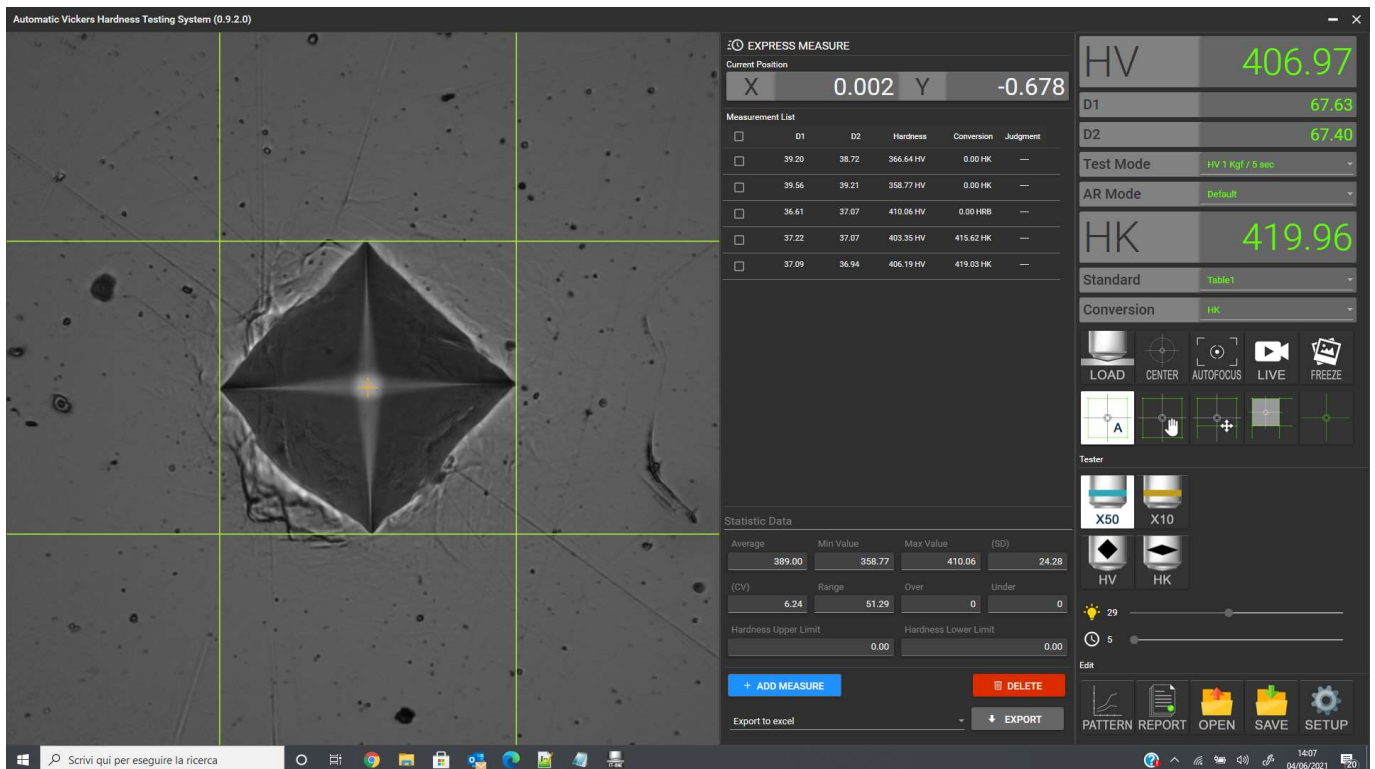
The Windows taskbar at the bottom shows the search bar, task view button, and several open applications. The system tray on the right shows the date and time as 15:17 on 01/07/2021.

- 1: In the International Settings input the License Key according to the detected Camera S/N.
- 2: Select the preferred measure units and leave the Display Time to 0 (not used in the manual version).
- 3: Select the proper hardness tester model and its configuration (Indenter, Lenses and Test loads).
- 4: Select the communication parameters according to the PC Windows Device Manager.
- 5: Confirm the selected parameters by Pressing SAVE.

NOTE: The changes take effect after the program restart.

NOTE 2: The PC must be set to English International settings for decimal numbers and divisions.

# ARGO SETUP LOAD AND MEASURE

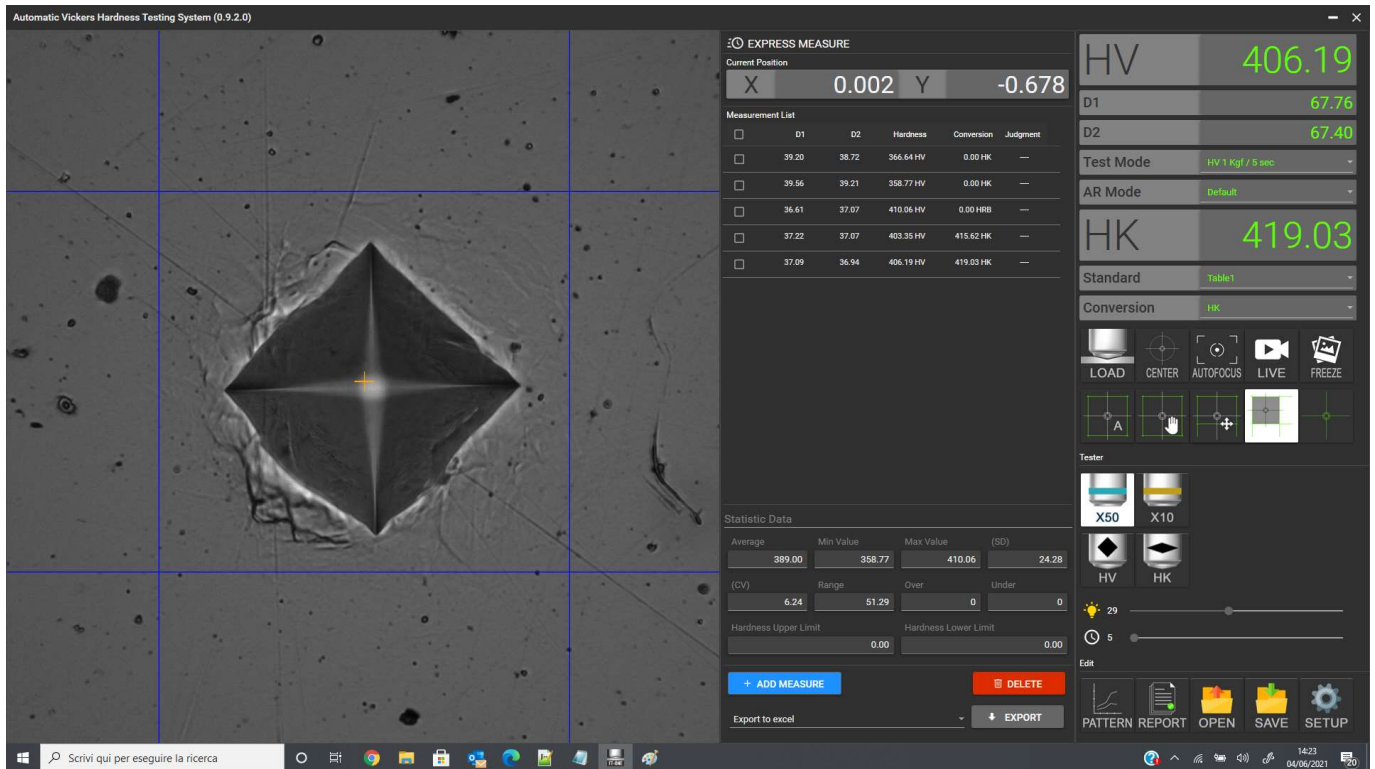


- 1: Select the desired load on the hardness tester (which updates the Test Mode description box) and press LOAD.
- 2: Once the indent is made, focus and press A cross button for auto-reading
- 3: To measure the indent manually, press HAND cross button and click on the vertex points starting from the left side
- 4: To adjust the auto-reading, press the CROSS on CROSS button and move the selected vertex point to match the edge.
- 5: Select the STANDARD and CONVERSION to get a converted value into the desired scale.
- 6: To add the current measurement to the EXPRESS MEASURE list, press the + ADD MEASURE button.
- 7: To store and/or print the measurement(s), select the values from the measurements list by clicking on the left box.



# ARGO SETUP

## ROI (Region Of Interest) SETUP



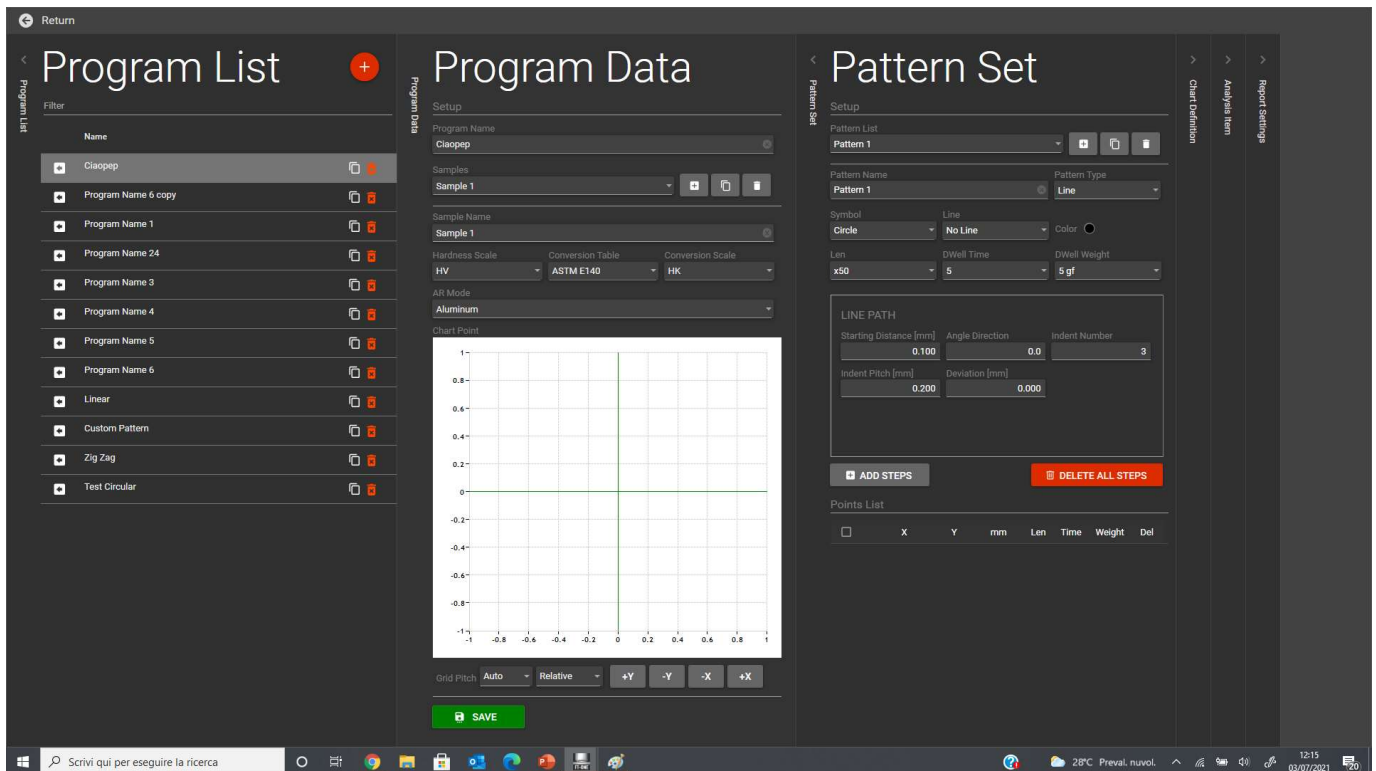
ARGO automatically detects and measures the indent anywhere inside the FOV without any specific setting. However, sometimes there could be more than one indent inside the FOV, or other big black spots which may influence a correct detection and reading. The ROI feature allows to select an area inside the FOV where the indent should be searched and identified. To setup the ROI size and position, follow the steps below listed:

- 1: Press the ROI button.
- 2: Inside the FOV, right click on the upper left corner and drag to the lower right position of the desired ROI area.
- 3: The created blue lines indicate the ROI area
- 4: When the ROI button is highlighted, the ROI feature is active. To deactivate the ROI feature, click on the ROI button.



# ARGO

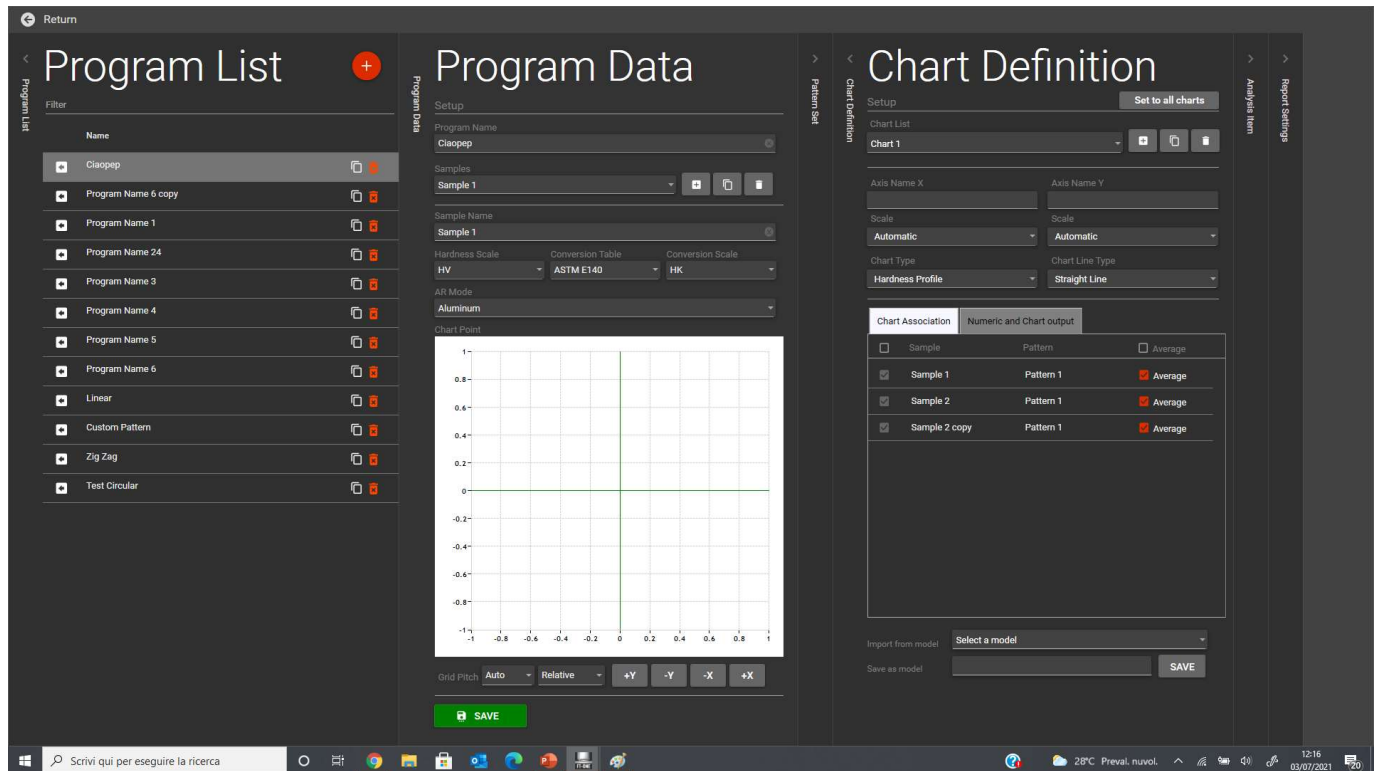
## PATTERN PROGRAM SETUP 1



- 1: Click on the PATTERN button in the main screen to get to the PROGRAM LIST menu.
- 2: Pickup and existing program by clicking on the ◀ button.
- 3: To create a new program, click on the + button
- 4: In the Program Data section create a name for the program, add one or more samples, select the desired AR mode.
- 5: Create a name and a pattern type. You can add to each sample unlimited patterns
- 6: Select the pattern type and add steps according to the indicated starting distance, angle, number, pitch and deviation (zig-zag offset).
- 7: Once the the pattern(s) details are defined, click on CHART DEFINITION section bar to setup the chart details.

# ARGO

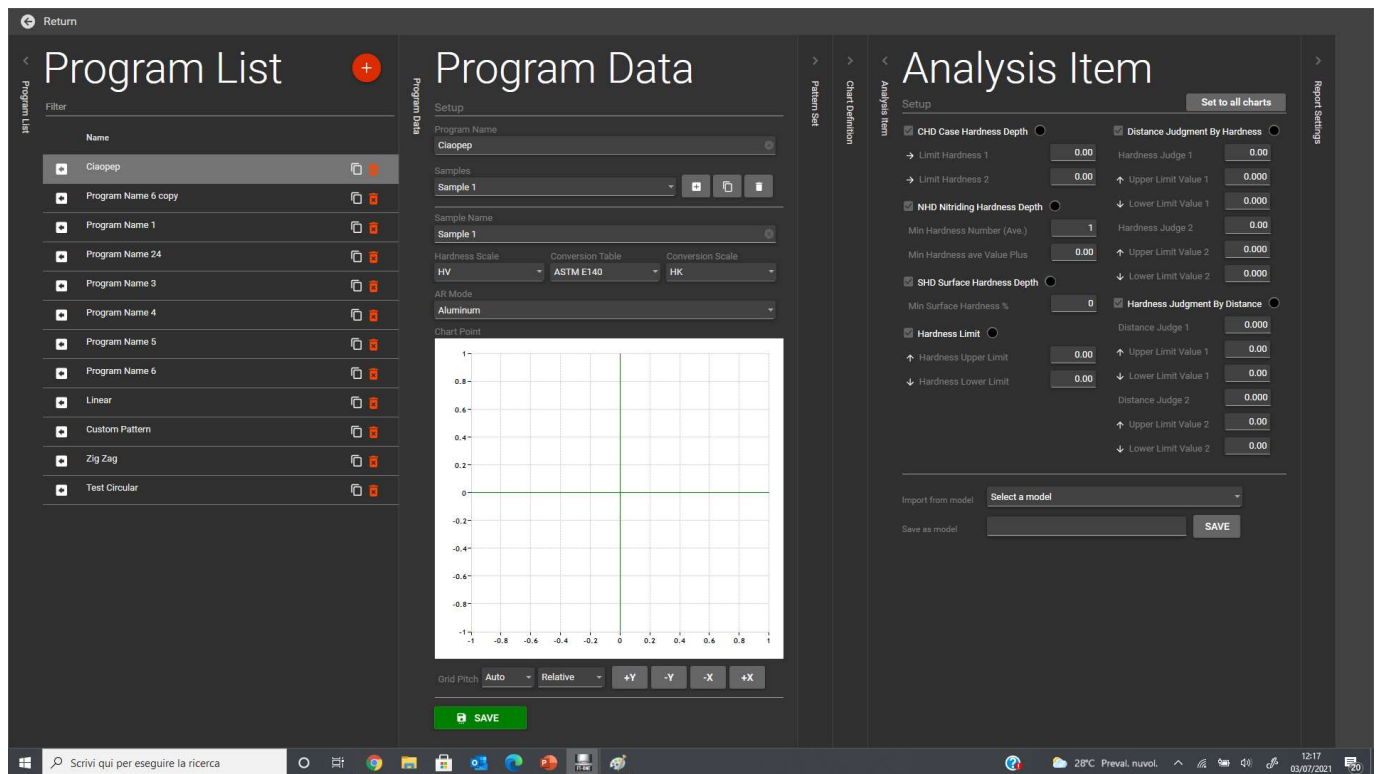
## PATTERN PROGRAM SETUP 2



- 1: Create a Chart (Chart 1 is the default name).
- 2: Select the Chart type and graphic details.
- 3: Associate the programmed Samples and Patterns to the Chart.
- 4: Chart parameters can be saved or a previously stored Chart Definition can be loaded.
- 5: Once the Chart(s) is defined, click on the Analysis Item Section bar.

# ARGO

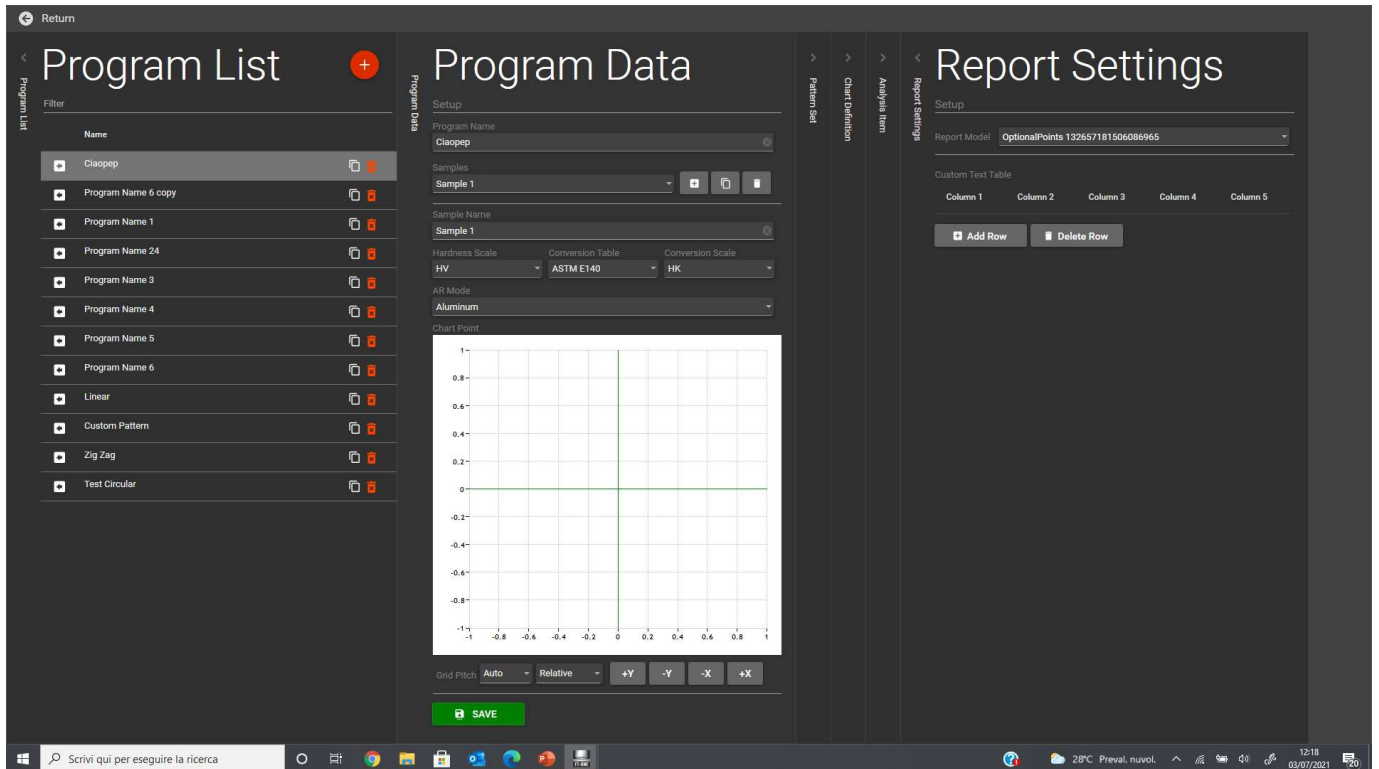
## PATTERN PROGRAM SETUP 3



- 1: If a desired Analysis Item Set has been previously saved, it can be loaded in the IMPORT FROM MODEL box.
- 2: Select the desired Analysis Items that will be calculated for the measured data.
- 3: Input the details for the selected Items, including the color that will be displayed in the chart.
- 4: The Analysis Items set can be saved as a model for future use.
- 5: Once the Analysis Items are filled with selections and preferences, press the Report Settings Section bar.

# ARGO

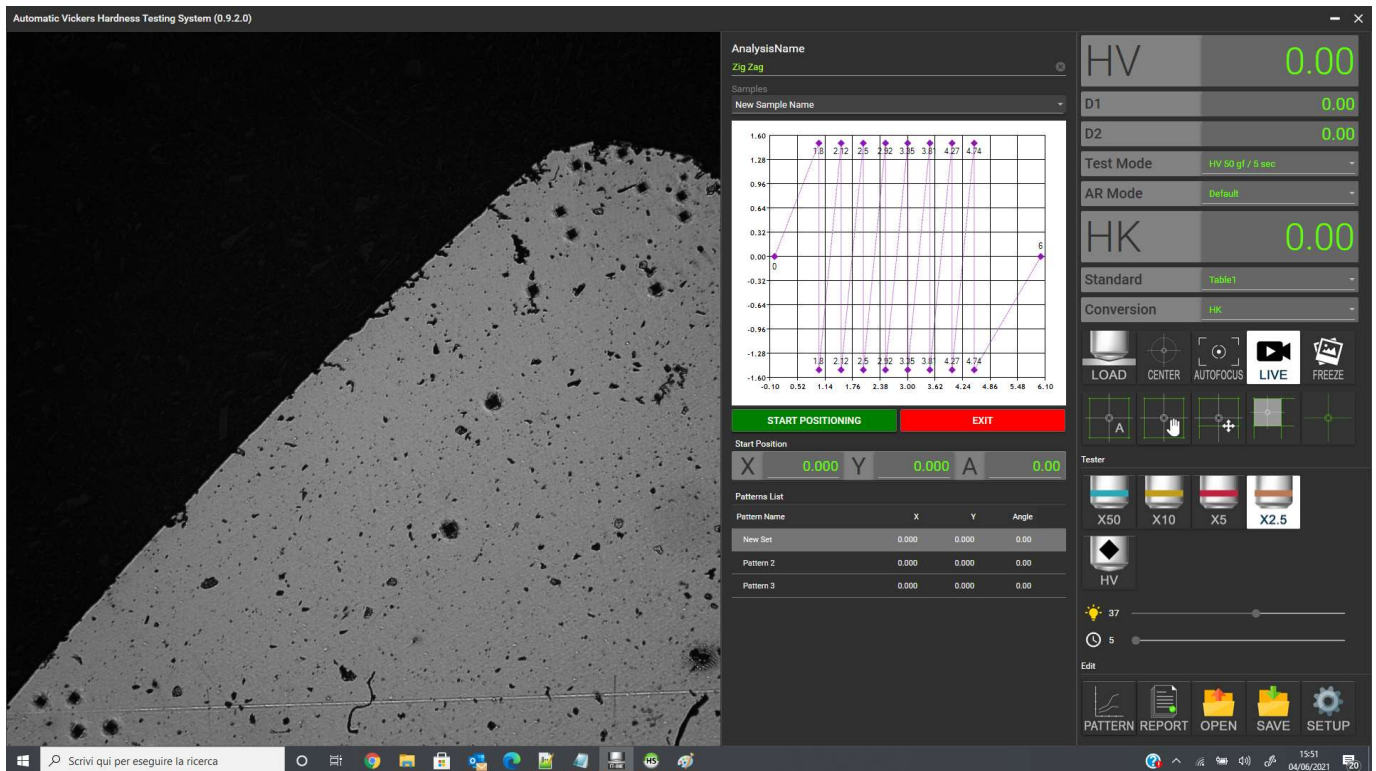
## PATTERN PROGRAM SETUP 4



- 1: All the selections for Chart definition and Analysis Item can be saved as a REPORT MODEL.
- 2: Customized text fields can be added to the report by clicking ADD ROW button.
- 3: Once all the sections are filled with selections and preferences, press the GREEN SAVE button to store the Program.

# ARGO

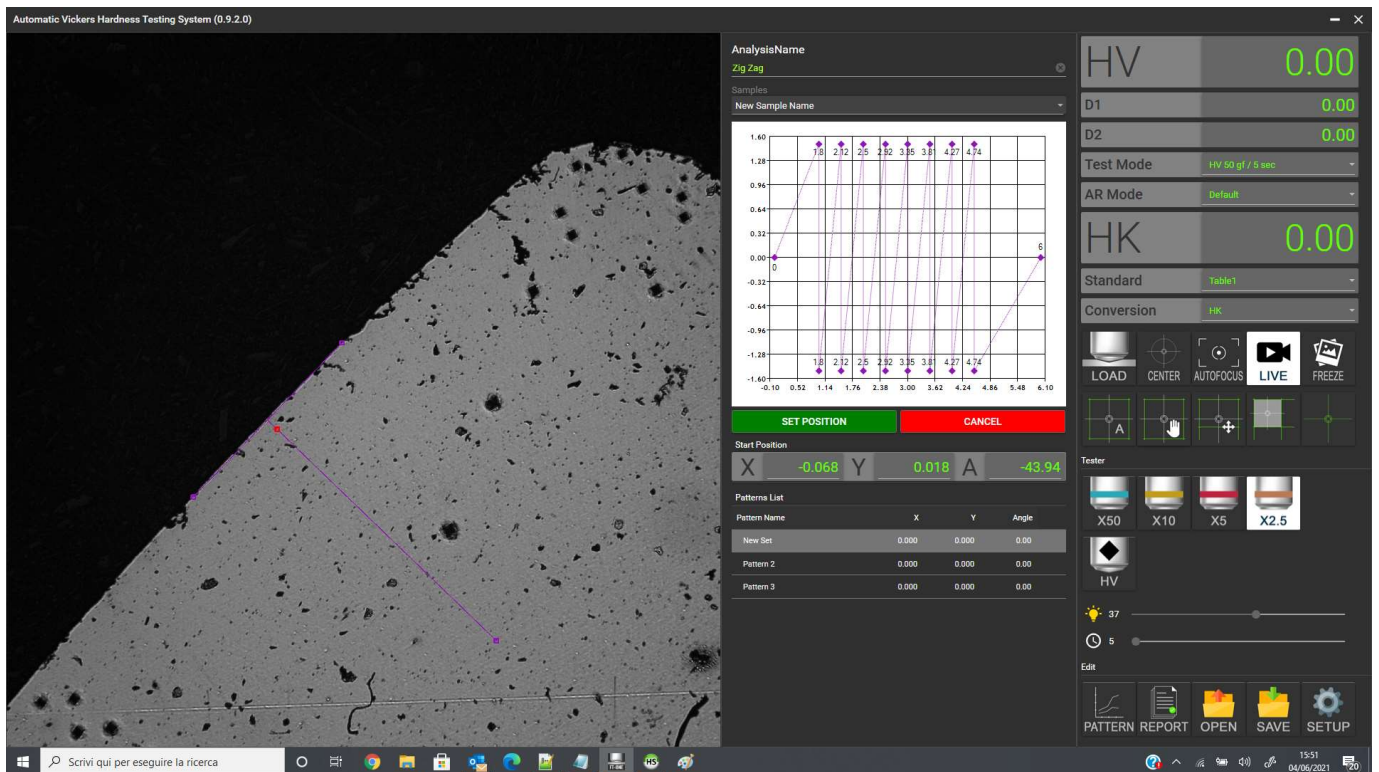
## PATTERN PROGRAM EXECUTION 1



- 1: Once the Pattern Program is loaded in the Pattern menu, the above screen appears.
- 2: Move the stage to get to the position where the Pattern should be measured.
- 3: Click the START POSITIONING button to start with the pattern start position settings or click the EXIT button to get back to the main screen.

# ARGO

## PATTERN PROGRAM EXECUTION 2

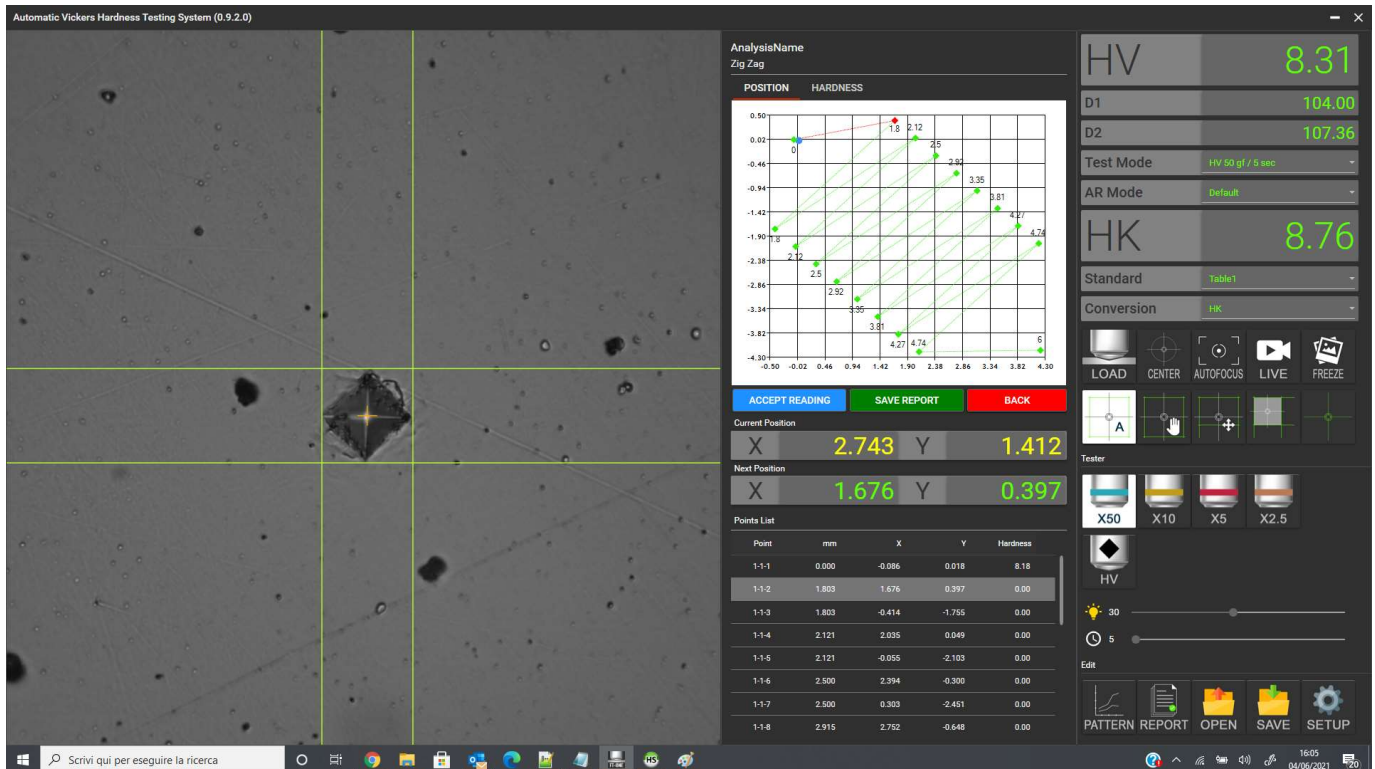


- 1: Click on the T lines and drag to move the starting position set.
- 2: Click on any line vertex and drag to extend the lines length.
- 3: Click on any line vertex and drag to adjust the angle (skew).
- 4: Click on the RED point and drag to move the starting position from the surface.
- 5: Once the position and angle is set, click the SET POSITION button to start the Pattern Execution



# ARGO

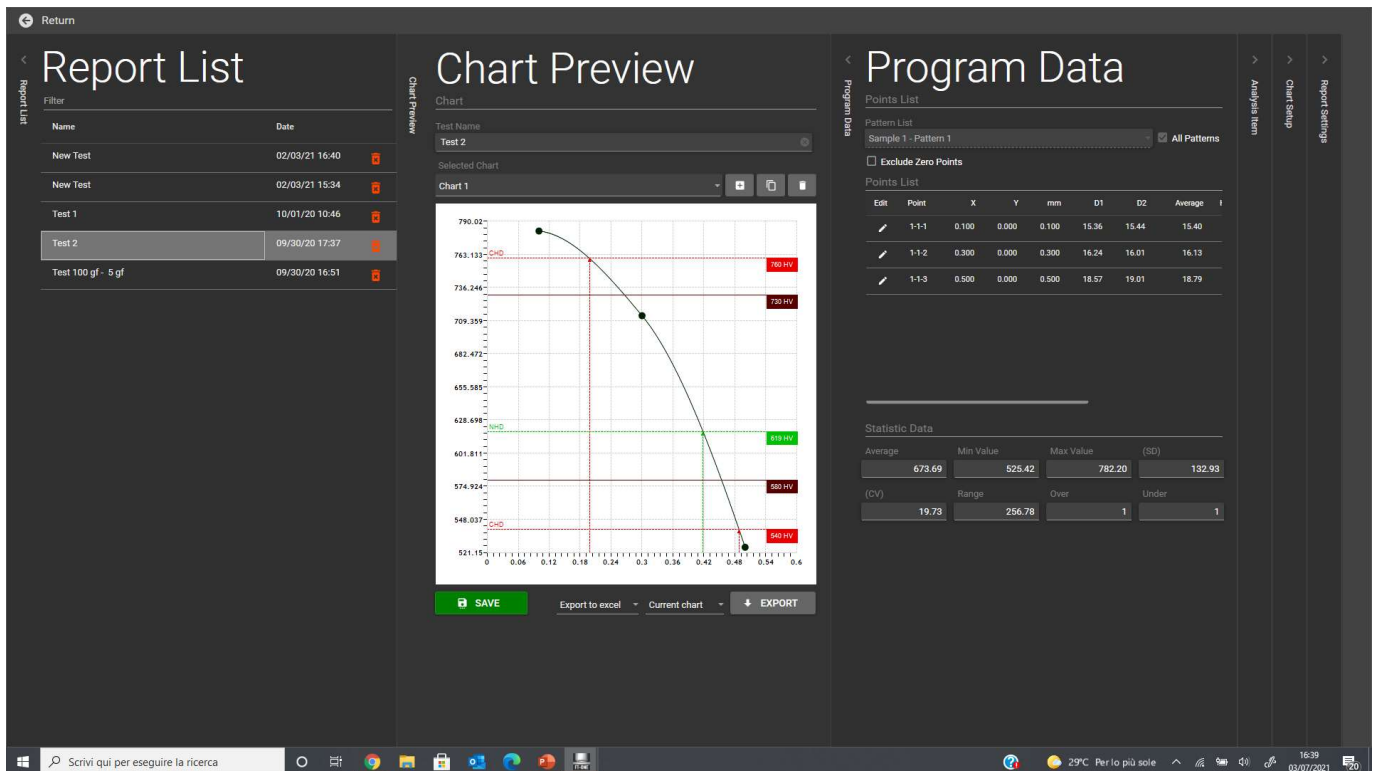
## PATTERN PROGRAM EXECUTION 3



- 1: Move the stage to the values indicated in the NEXT POSITION Section.
- 2: If the digital micrometers are installed, the actual stage position is displayed in the CURRENT POSITION box .
- 3: When the actual position becomes less than 5 microns close to the target position, the displays become GREEN.
- 4: Once the indenting position is reached, press load to start the indentation process.
- 5: Once the indent is displayed, click on AUTO-reading button or MANUAL to read the indent.
- 6: Adjust the reading if needed.
- 7: Once the reading is OK, proceed by clicking the ACCEPT reading button to store the measure and move to the next position of the pattern.
- 8: When all the positions of all programmed Patterns are measured, a «PATTERN COMPLETED» message will appear.
- 9: Click on SAVE REPORT button to get to the Report Screen to review, print and store the results.



# ARGO REPORT SCREEN



- 1: Assign a name to the Report dataset (the default name is the Program Name).
  - 2: Edit and review the measured data and the calculated Analysis Items.
  - 3: Analysis Items setup and Chart setup can still be changed/modified if needed.
  - 4: If everything is OK, click the SAVE button to definitely store the data.
  - 5: Select the Export mode and press EXPORT button to get the Excel or PDF file to be printed.
- NOTE: This section can be also accessed from the main screen by clicking the REPORT button. The stored reports appear in the Report List and can be edited/modified/saved/exported again anytime.