FTY

Dynamic test bench

Dynamic test bench

EN

FTY User Manual

CONTENTS

REVISION TABLE

Edition	Date	Description	Author	DataPro software version
1.0	31/07/2014	First Edition	R.D.\ R.S.	1.1.7

NOTE: this manual may be altered without further notice

SAFETY INSTRUCTION

⚠ **WARNING:** PLEASE READ THE FTY SAFETY INSTRUCTIONS

CAREFULLY PRIOR TO USING THE PRODUCT AND STRICTLY FOLLOW.

⚠ **WARNING:** DO NOT DISASSEMBLE ANY PANEL

All the service activities, including those related to maintenance of the batteries, must be executed only by SCS Concept service personnel properly trained.

⚠ **SAFETY FIRST! USE REACTION BAR!**

Reaction bar must be used for testing tools over 15Nm.

GENERAL TERMS

All Rights reserved. Specifications are going to change without notice.

Trademarks are the property of SCS Concept and their respective owners. SCS Concept reserves the right to change products at any time without being obliged to adjust earlier supplies accordingly.

The material in this manual is believed adequate for the intended use of the system. If the product, or its individual modules or procedures, are used for purposes other than those specified herein confirmation of their validity and suitability must be obtained.

SCS Concepts thanks his customers, distributors and partners to communicate eventually errors found in the manual

TERMS OF WARRANTY

Never attempt to repair the product yourself, risk to injury, damage the product and avoid the warranty.

Use SCS Products and accessories only as intended by the manufacturer.

Any operation expressly prohibited in this manual, or adjustments and assembly procedures not recommended or authorized in this manual shall avoid the warranty.

Compliance with EMF

SCS Concept manufactures and sells many products targeted at customers which, like any electronic apparatus, in general have the ability to emit and receive electromagnetic signals. One of SCS' leading Business Principles is to take all necessary health and safety measures for our products, to comply with all applicable legal requirements and to stay well within the Electro Magnetic Field standards applicable at the time of producing the products. SCS Concept is committed to develop, produce and market products that cause no adverse health effects. SCS Concept confirms that if its products are handled properly for their intended use, they are safe to use according to scientific evidence available today.

BATTERIES INFORMATION

According to European regulation 2006/66/CE

TYPE: two 12V 55 Ah AGM electrolyte type lead acid storage batteries

WEIGHT: 15 Kg each

	WARNING: ONCE REMOVED, WASTED BATTERIES MUST BE DISMISSED ACCORDING LOCAL REGULATIONS

INTRODUCTION

SCS FTY test bench is a measure instrument for nut runner, power tool, screw driver, dial wrench and click wrench. FTY is able to reproduce joint stiffness of assembly line. This peculiarity allows to test assembly tools in laboratory. This is a great advantage; before this technology , users tested tool directly on production line influencing the production time, or as alternative on mechanical joint simulator with static transducer, but it is necessary to have one mechanical joint simulator for every type of joint, otherwise the test will be make in different condition and the torque output of tools depends to the joint stiffness.

SPECIFICATION

MAIN FUNCTIONS

- Test Cm/Cmk and SPC
- Test of power tools according to ISO 5393
- Test of Torque wrenches according to ISO 6789
- Test of power tool with rotary transductor
- Test of click wrenches
- Tesy of multi-step tools
- Analysis with Torque/Angle wrenches
- Process Control with Torque/Angle wrenches

TECHNICAL

- Torque range: Standard dynamic transducers, from 1 to 300 Nm, static transducer up to 200 Nm.
  Other capacities on request
- Torque measurement accuracy: ±0,5 % , from 20% up to 100%..
- Battery power supply (2 batteries 12 V 55 A/h): 8 hours endurance in operation mode.
- Recharging at 100 ÷ 230 VAC 50 ÷ 60 Hz; maximum 6 hours (bench switched-off).
- AC Power Consumption: 1320 W maximum.
- AC Fuses: 1 fuse 4 A.
  Overvoltage category: II .
- Battery Fuses: 2 fuses 16 A, 500V.
- Oil for hydraulic circuit: 2,5 liters of Shell Tellus Oil T46 .
- Industrial PC.: 1 fuse 5 A.
- Indicator "Low battery" "In charge".
- Digital voltmeter
- Oil pressure gauge.
- Dimensions / Weight: 930x460 h894 (screen excluded)/ 240 Kg.

INTERFACES

- Touch screen LCD monitor
- External transducer connectors for strain gauge Torque/Angle transducers; +5V supply for transducer and encoder.
- Keyboard
- 2 x USB
- 1 x GbE LAN

ENVIRONMENTAL

Following conditions must be observed during operation:

- Internal Use only
- Environmental Class: II
- Ambient temperature: 5 to 40°C
- Atmospheric humidity: Max 95%, non-condensing

STANDARD CONFORMITY2004/108/CE   EMC Directive - Electromagnetic Compatibility

- 2006/95/CE   Low Voltage Directive
- EN 61000-3-2:2000 + A2   EMC
- EN 61000-3-3:1995 + A1   EMC
- EN 61326-1:2006   EMC
- EN 61010-1:2001   SAFETY
- Sound power levels according to ISO 3744 (measured on FTY standard):
  - LW(A):   57.3 dB(A)
  - Lp(A):   45.5 dB(A)
  - Lpeak(C):   86.0 dB

CERTIFICATION

SCS benches are provided with a **DakkS Calibration Certificate.**

Bench brakes and static cells should be recalibrated once every year.

Contact *SCS Concept* for calibration and certification.

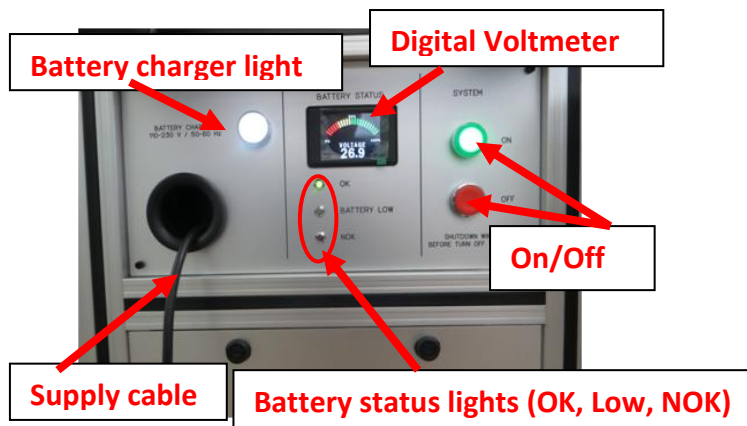# DESCRIPTION

OVERVIEW

This is the bench standard version.

The most typical customization is the number, type (static, dynamic) and capacity of transducers.
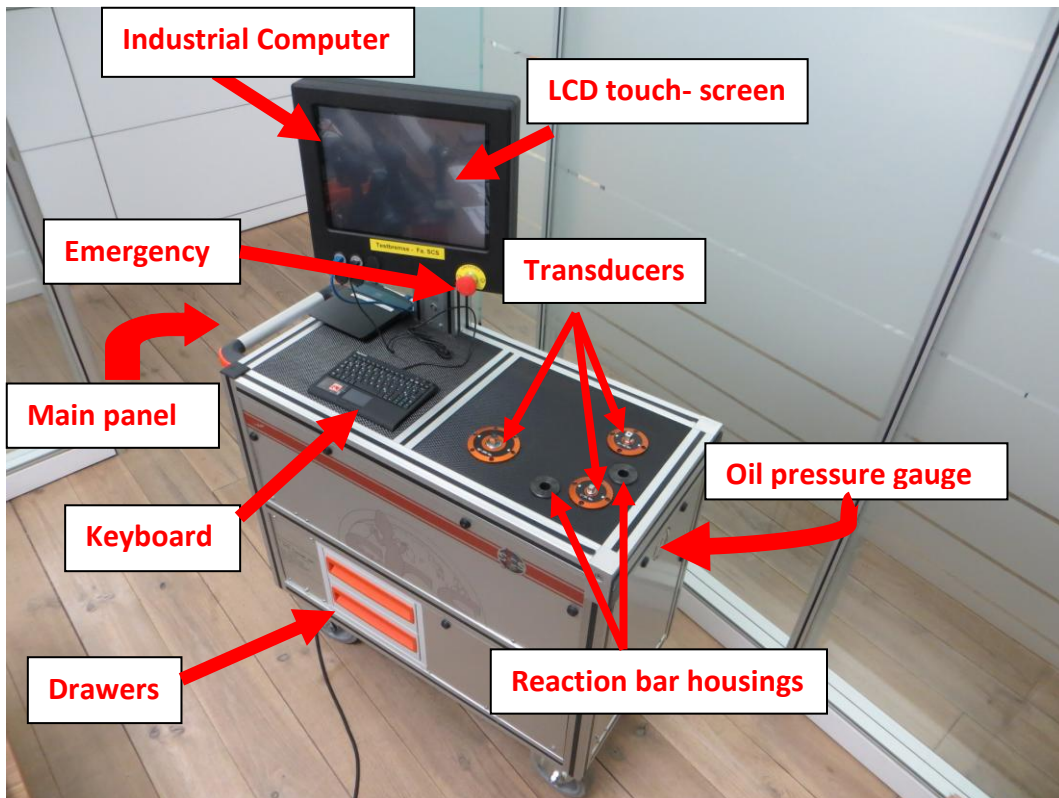
MAIN PANEL

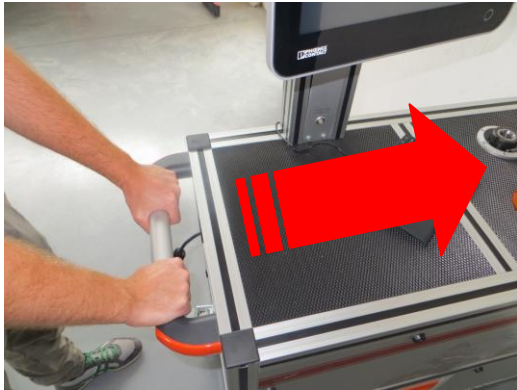Main panel is on left side of the bench, on right side oil pressure gauge.

COMPUTER OUTLETS

- 1 x GbE LAN
- 2 x USB 2.0

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MOVE and STOP

To move the bench, firstly grab the handle bar firmly with both hands.

Wheel blocking system

To stop safely the bench, block the rear wheels as shown in the pictures below.

WARNING! Use safety shoes!

Block

Unblock

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ON/OFF

Push **green button** on main panel (left side of the bench) to switch on.

Push **red button** to switch off.
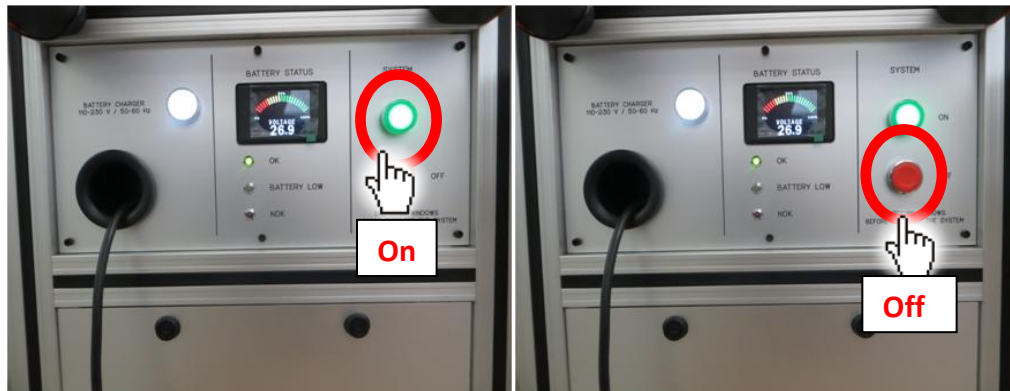
Push the green button, automatically the bench will start DataPro software:

After about a minute, DataPro will open the main page.
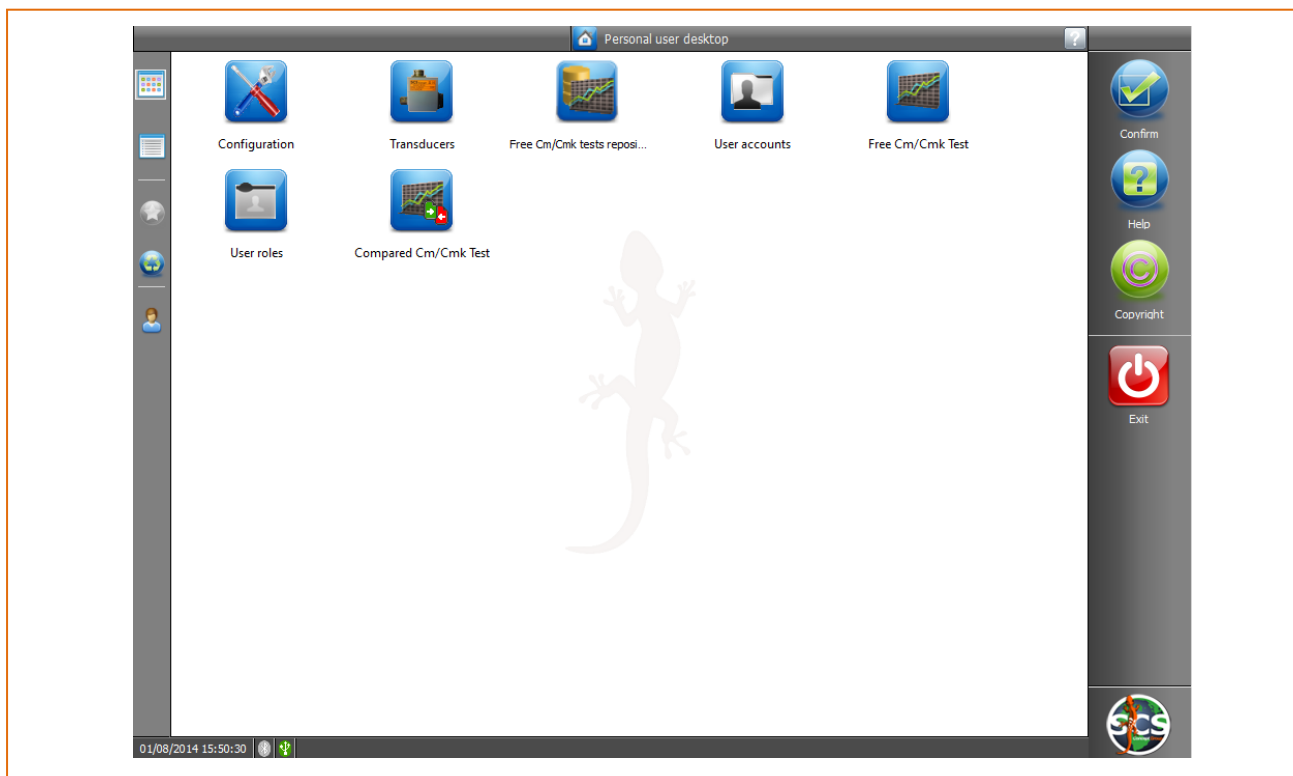
CONFIGURATION

*As default FTY is configured by **SCS Concept** personnel, according to customer needs.*

Is important to underline that not all are going to be discussed in this user's guide. VPG+ can be personalized by customer request; some of these customizing are therefore ad hoc. Otherwise is easy, for the customer, to get some personalization.

Following some of the main configuration windows.

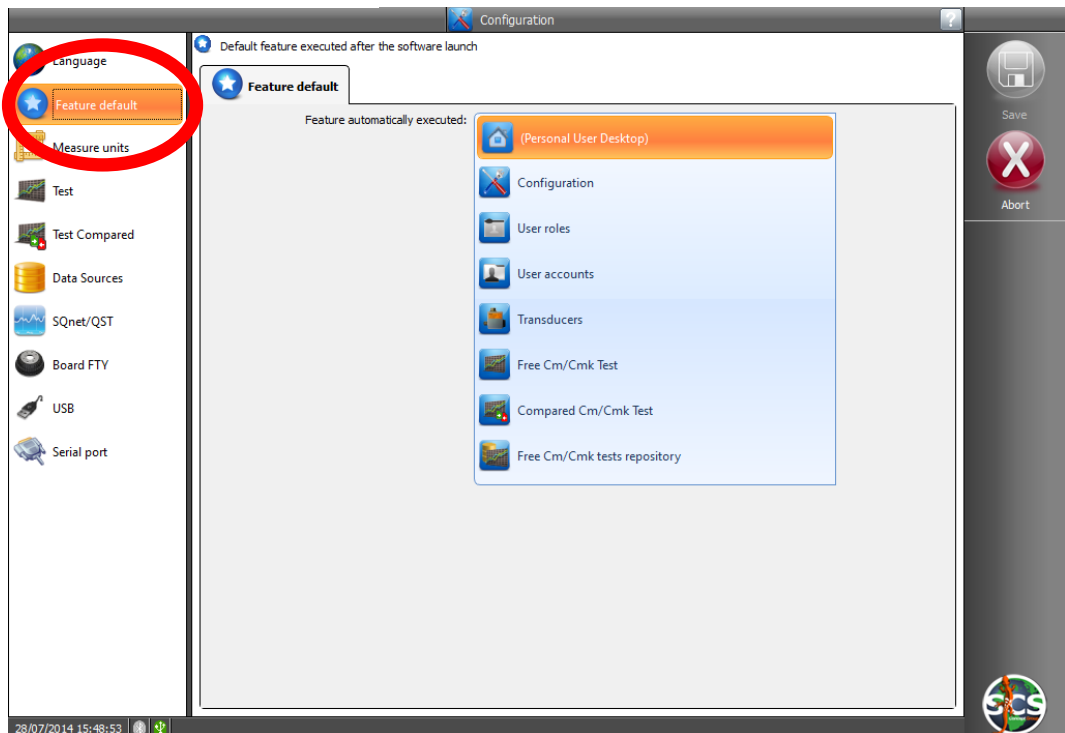Switch on the bench:

Select "Configuration" icon from main page.
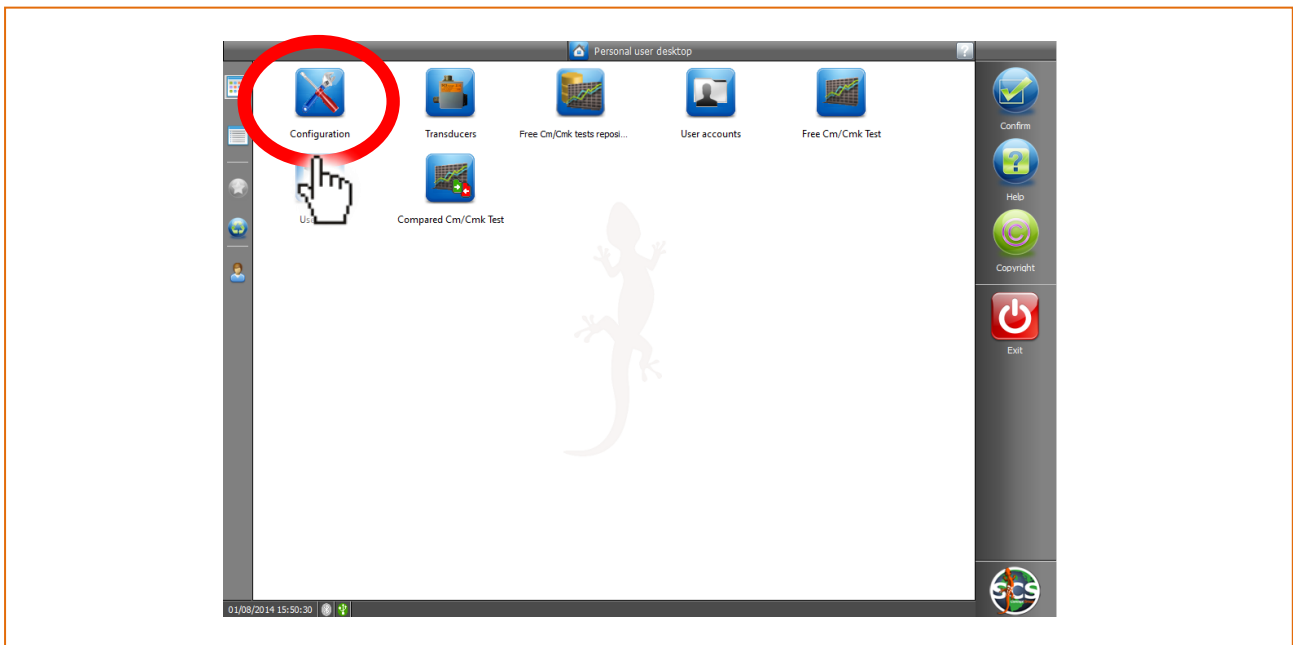
Window below will appear, on left section it is possible to select different configuration options:
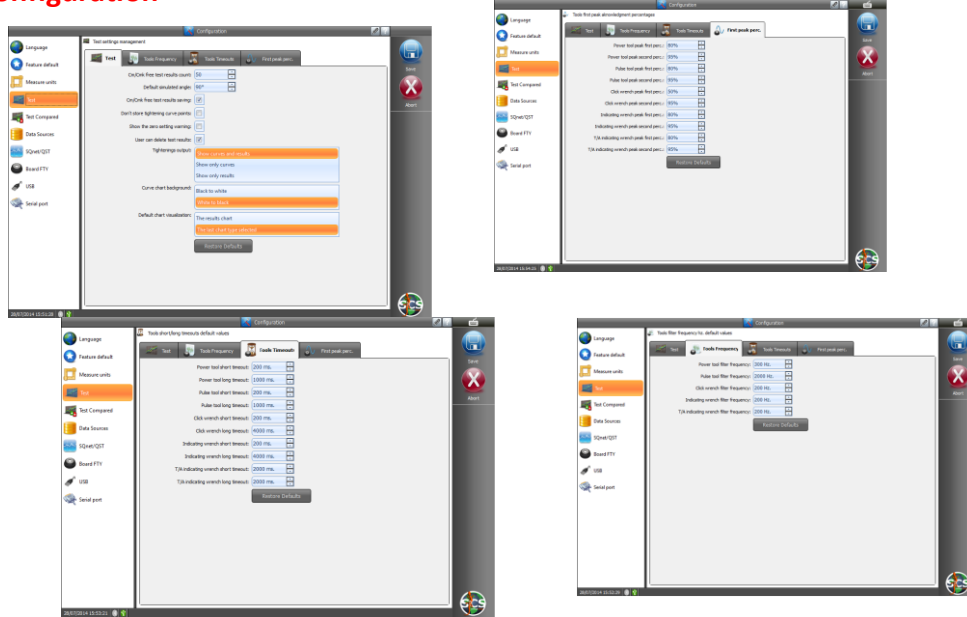
Language configuration
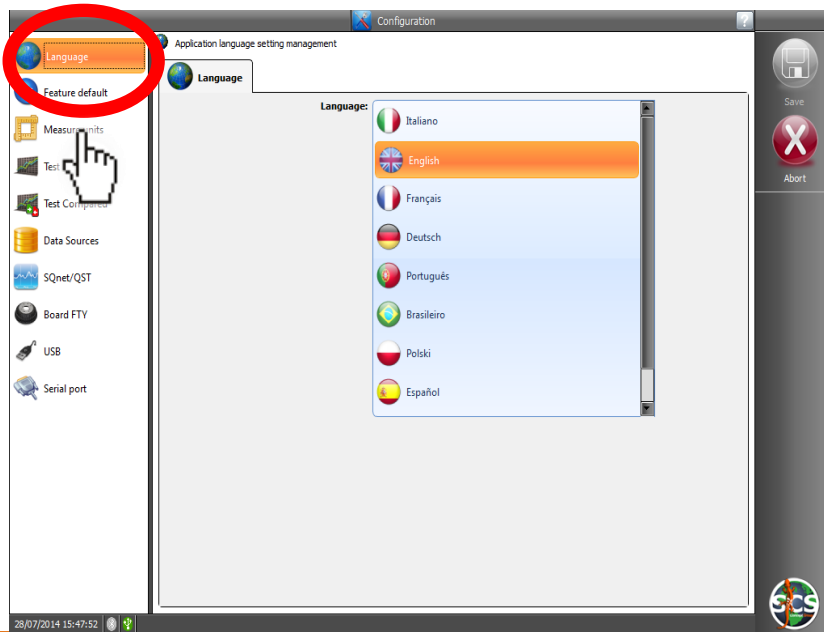
Feature default configuration

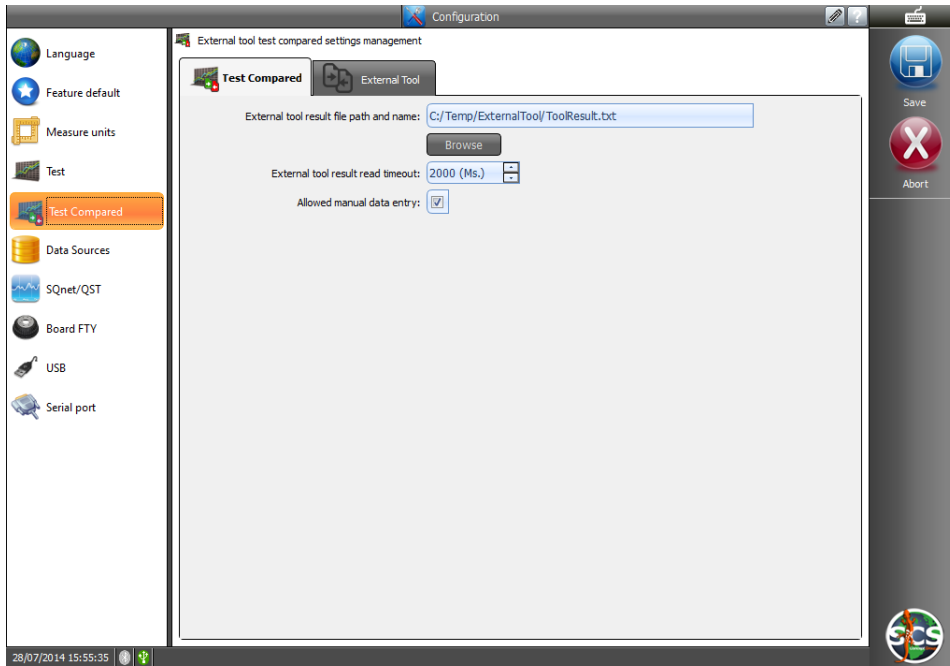# Measure units configuration
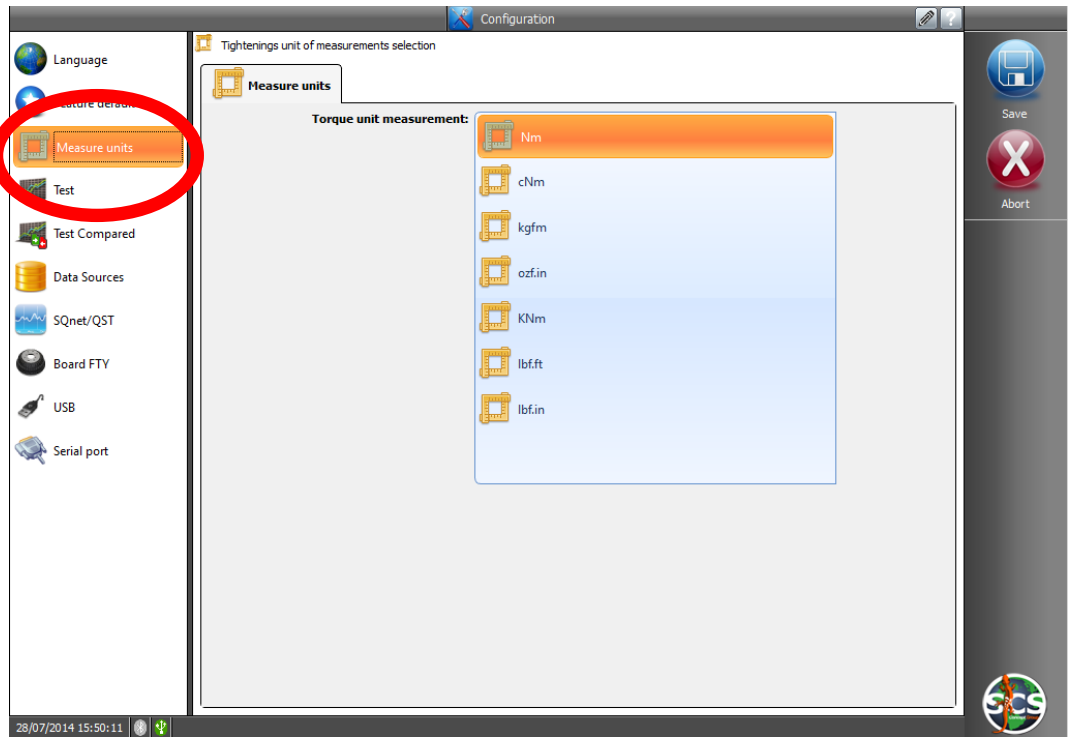
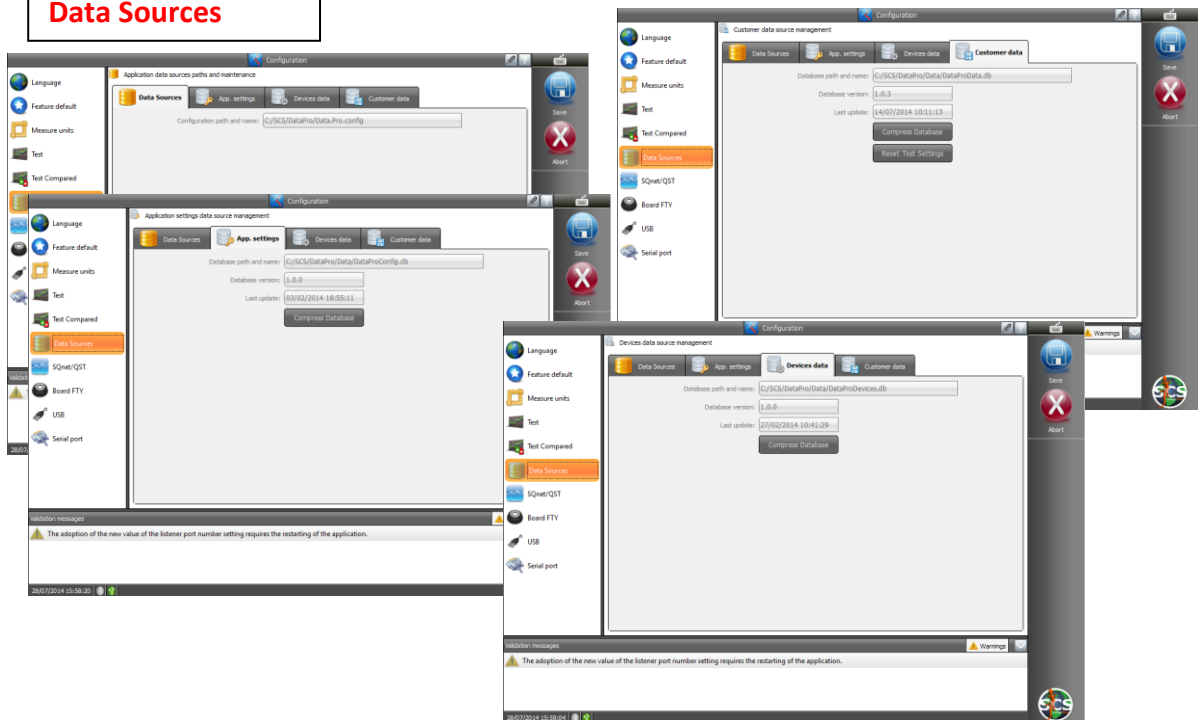## Test configuration

Tool frequency

Tool time-out

First peak perc.
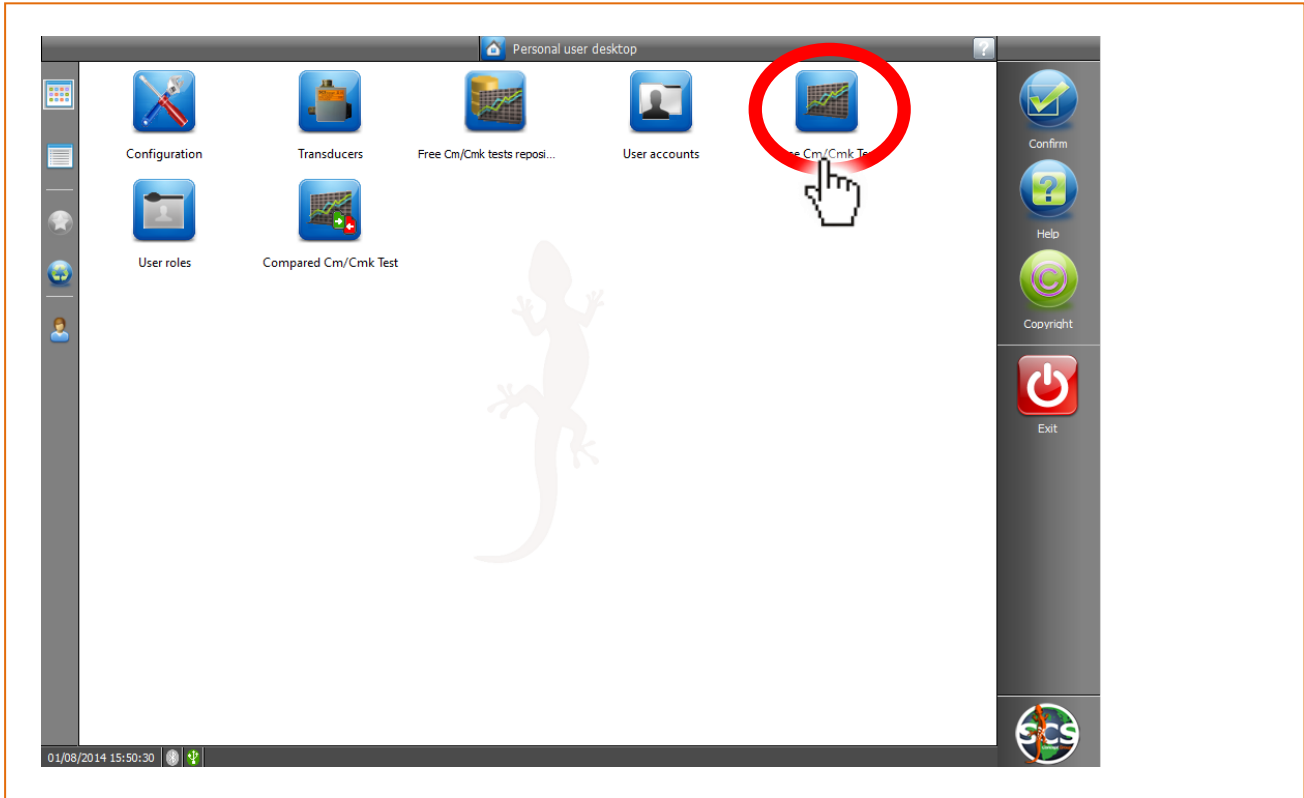
Test Compared

Data Sources

FREE Cm/Cmk TEST

Select the icon "Free Cm/Cmk Test" from DataPro main page.

Once selected on main page "Free Cm/Cmk Test", a window will appear where it is possible to select the type of tool to test and set-up all test parameters :

DataPro scans and recognizes automatically the connected devices (in that case 3 dynamic and 1 static transducers).

On the left section of the window it is possible to select the type of tool to test:

- Power Tool
- Pulse Tool
- Click Wrench
- Indicating Wrench
- Torque/Angle Indicating Wrench

On the right section of the window it is possible to select one of the connected transducers.

At this point operator can choice tool type, correct transducer and enter the test parameters on the central section of the window.
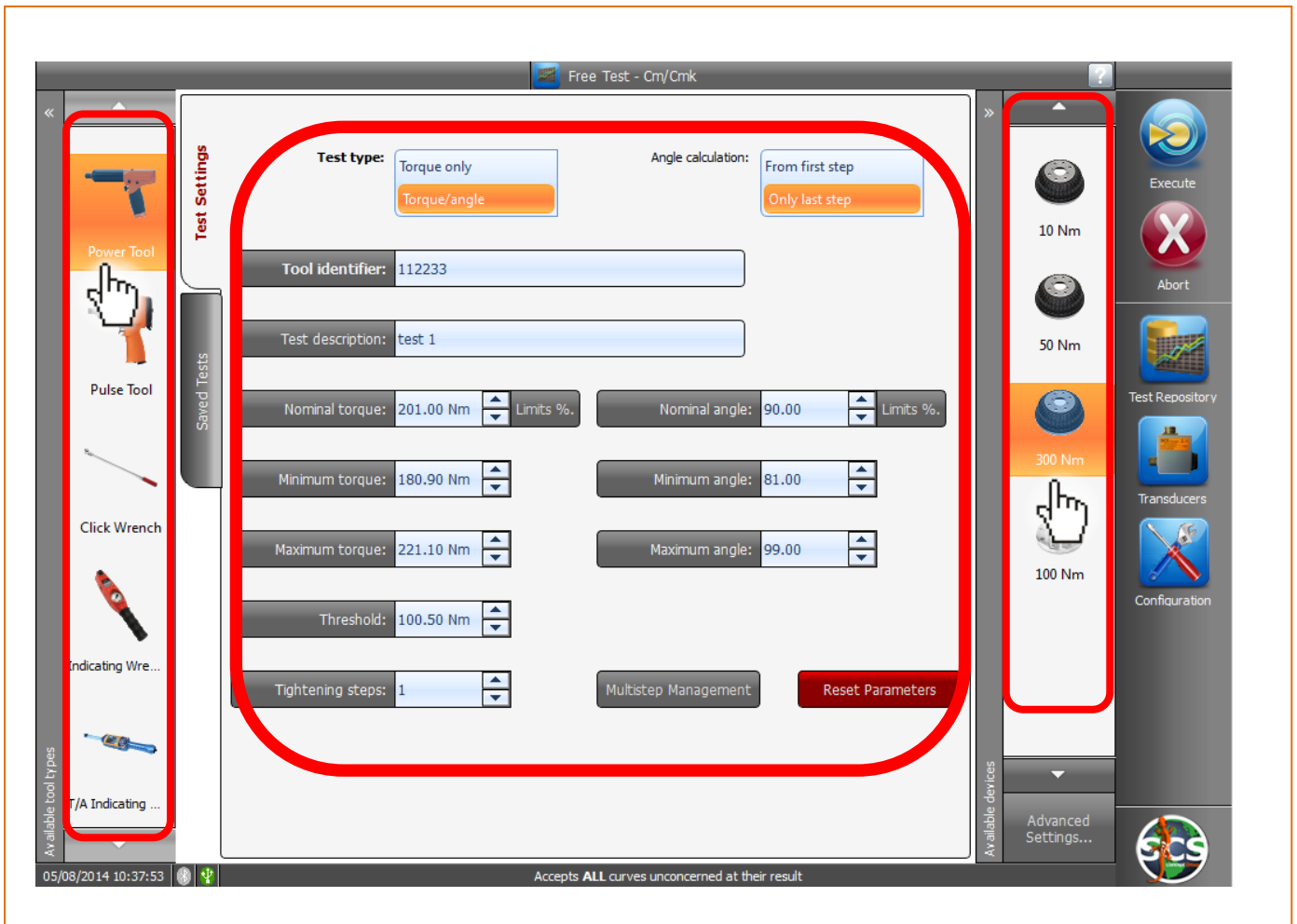
Meaning of the parameters

Test type:

"Torque only": to get only torque statistic.

"Torque/Angle": is only for Torque/Angle transducer.

Angle calculation:

"From first step" & "Only last step": In case of multi-step tool, the software capture the angle from the first step or from the last step of the Torque/Angle curve.

Tool identifier: Tool description/code.

Test description: Test description/code.

Nominal torque: Value to test

Limits %: Tolerance to be considered.

Minimum torque: Lower tolerance limit (automatically calculated).

Maximum torque: Upper tolerance limit (automatically calculated).

Threshold: Torque value from wich the measurement starts (per default, set at 50% of Nominal Torque).

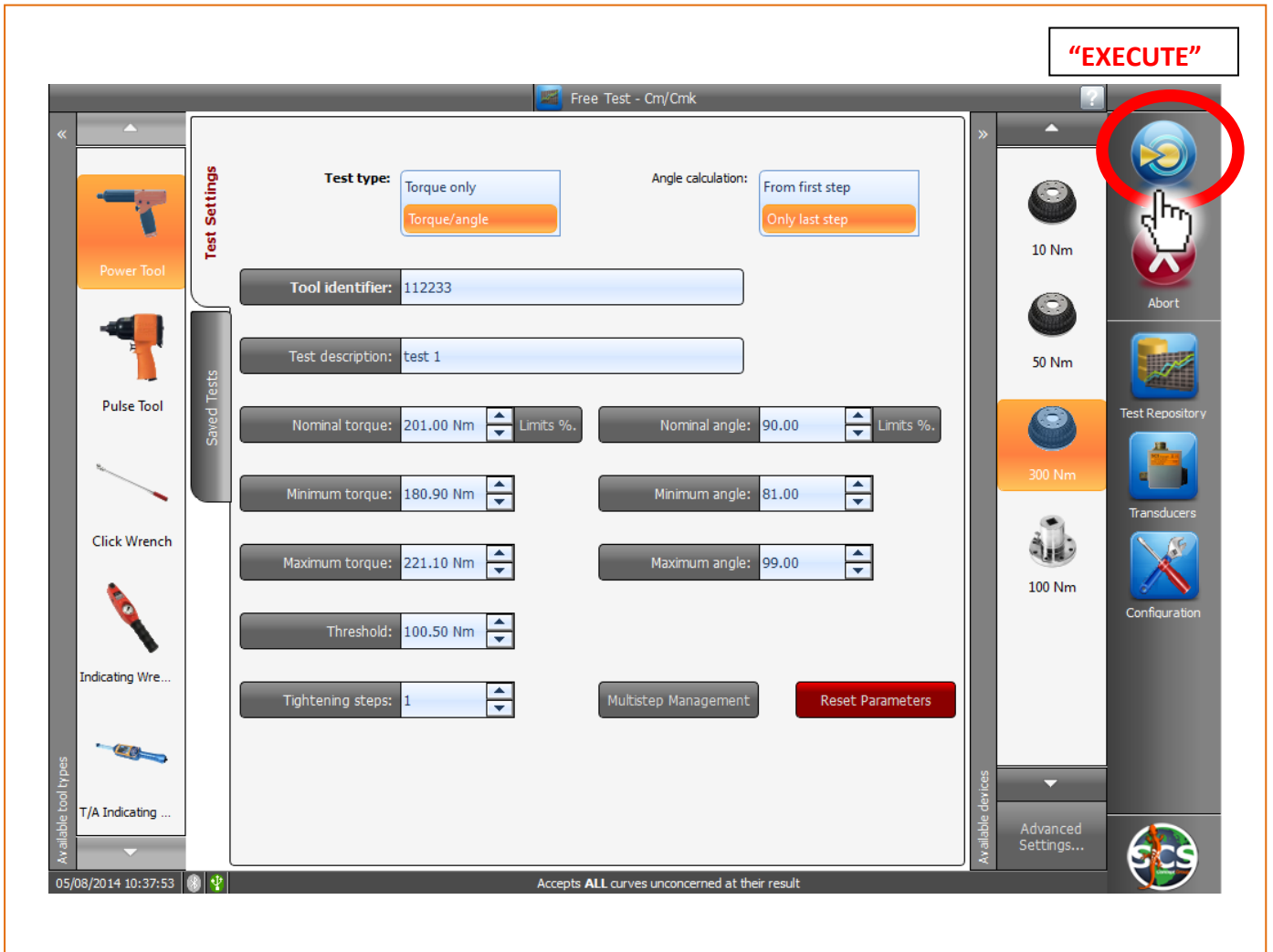Number of tool steps: Regarding multi-step tools.

Simulated angle:

Multistep management: Allows to set up the transducers for multi-step tools test.

Reset parameters:

Power Tool Free Test

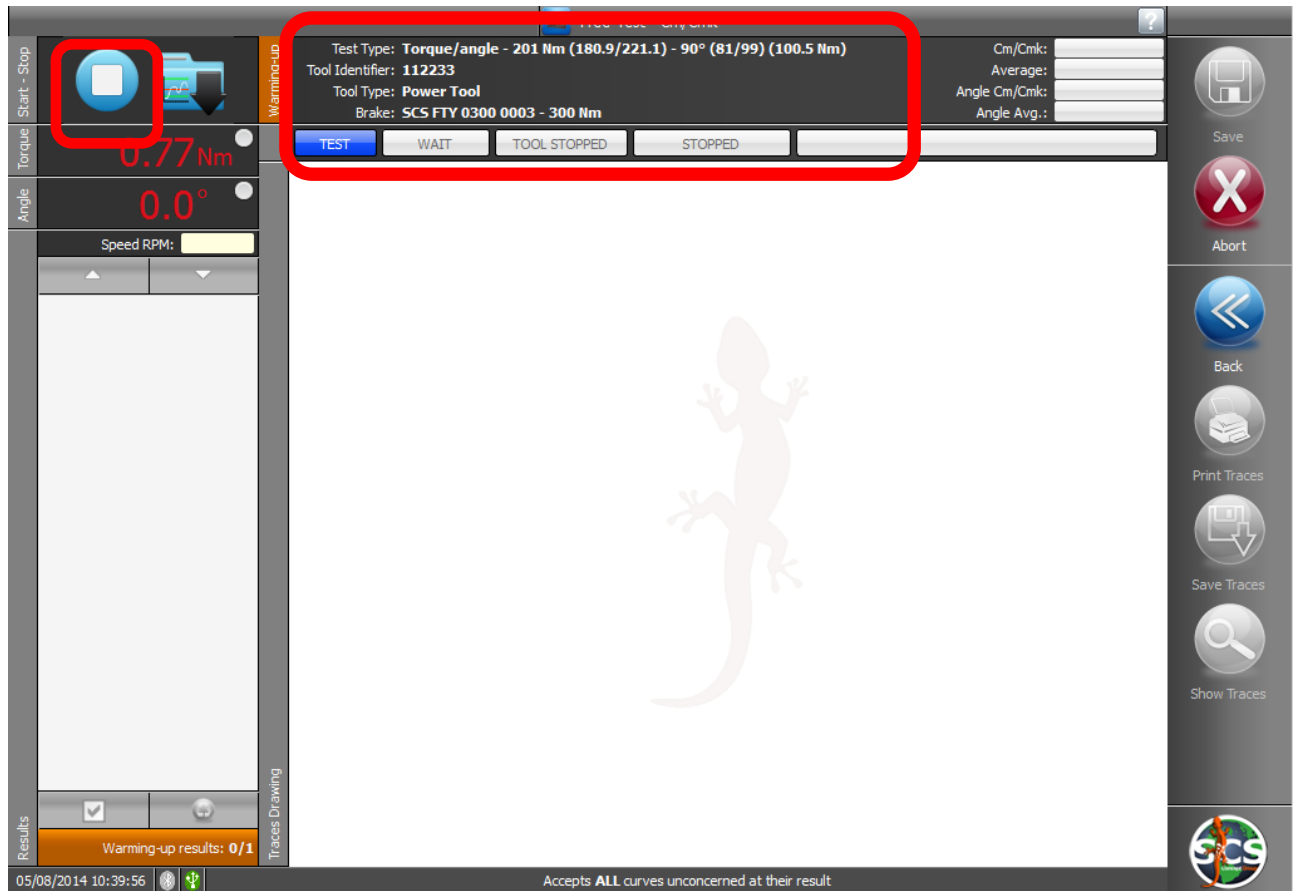After having set-up tools and test parameters, you are ready for testing;

CLICK "EXECUTE":

Following windows, "READY TO TEST", will open:

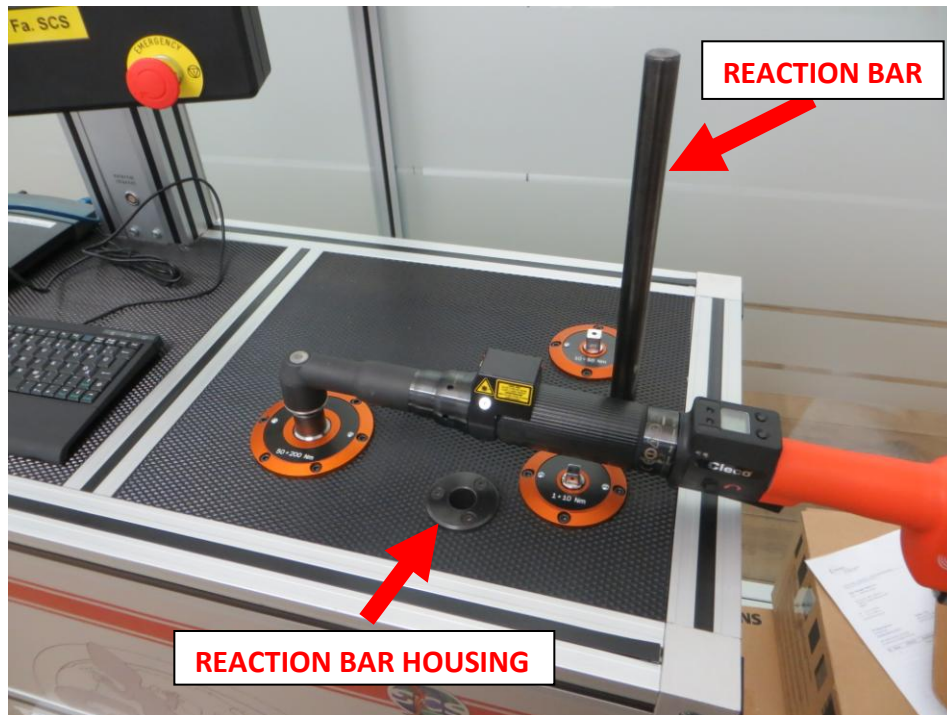**Start/Stop**   **Test and tool main parameters**

Now the operator can engage the tool on correct transducer shaft, and start the test.
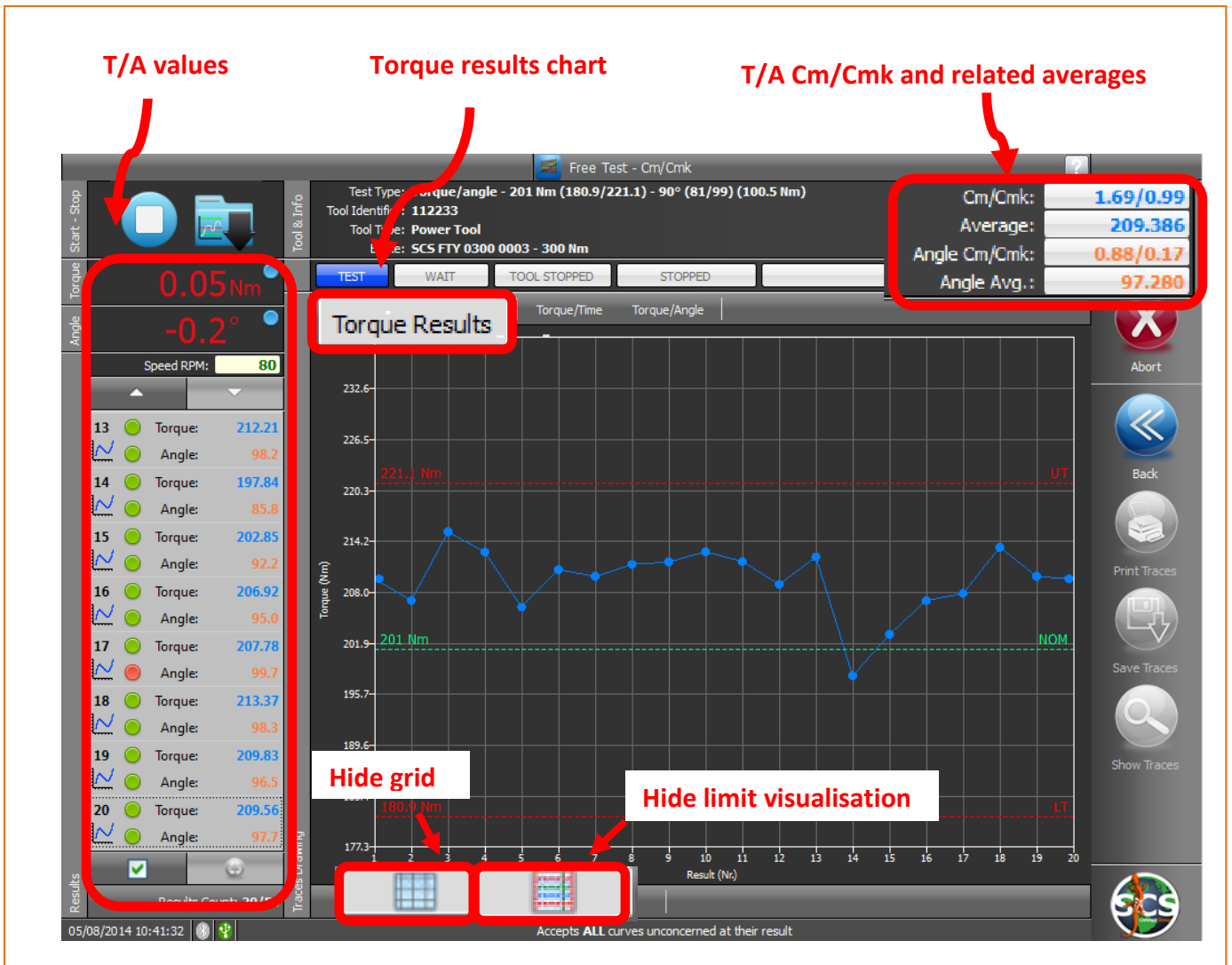
SAFETY FIRST! USE REACTION BAR!

A reaction bar must be used for testing power tools over 15Nm.

After the first sample a window like the one below will appear.

In the window we have following information:

- Torque results chart
- Torque Cm/Cmk
- Torque Average
- Angle Cm/Cmk
- Angle Average
- Torque and Angle values for each test.
  (Green led indicates OK value, red led indicates NOK value red).
- Comparing curves
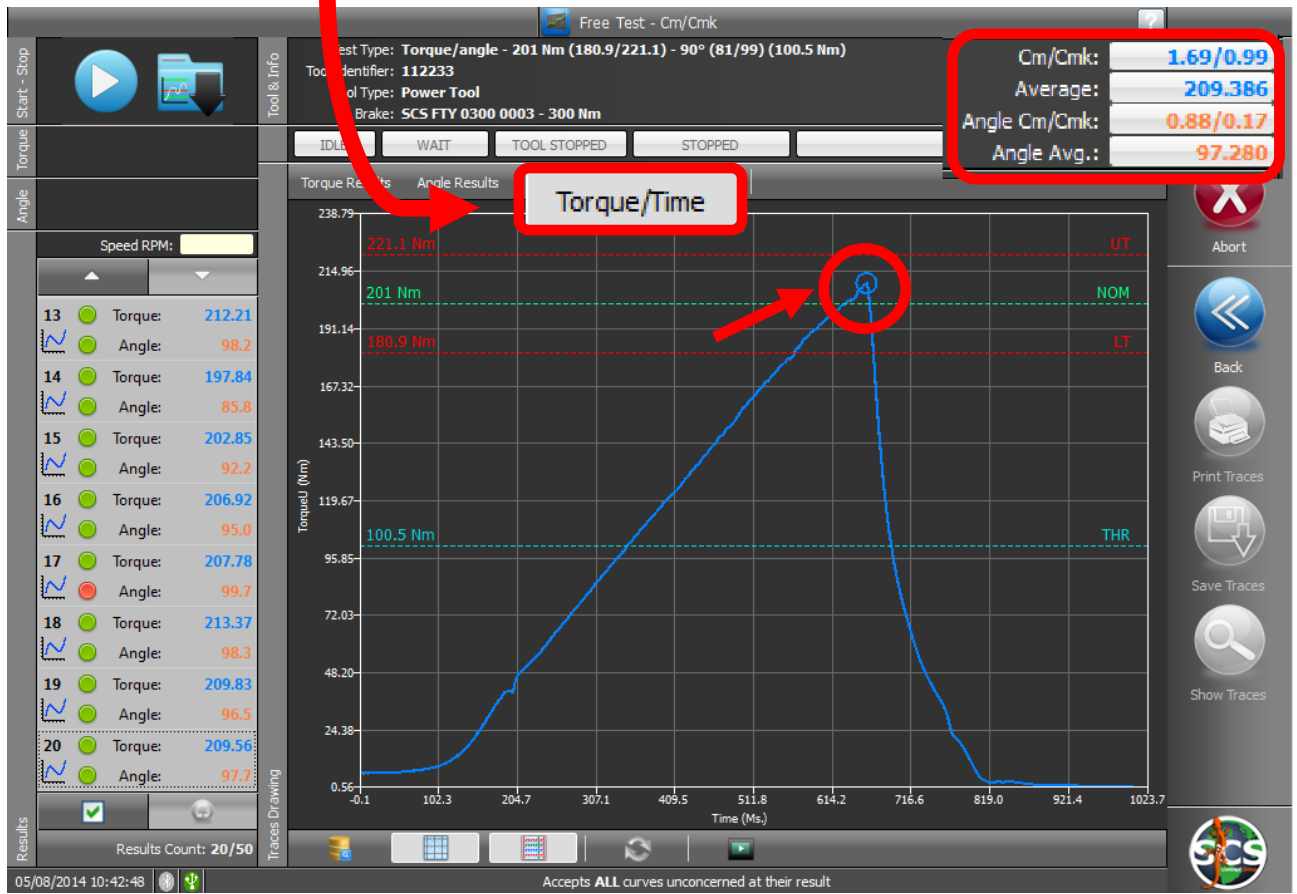- Zoom/Unzoom
- Point coordinates & curve replay

T/A values · **Torque results chart** · **T/A Cm/Cmk and related averages**

Hide grid · **Hide limit visualisation**

Clicking the bar over the chart, operator can have some charts more, as shown in following windows:
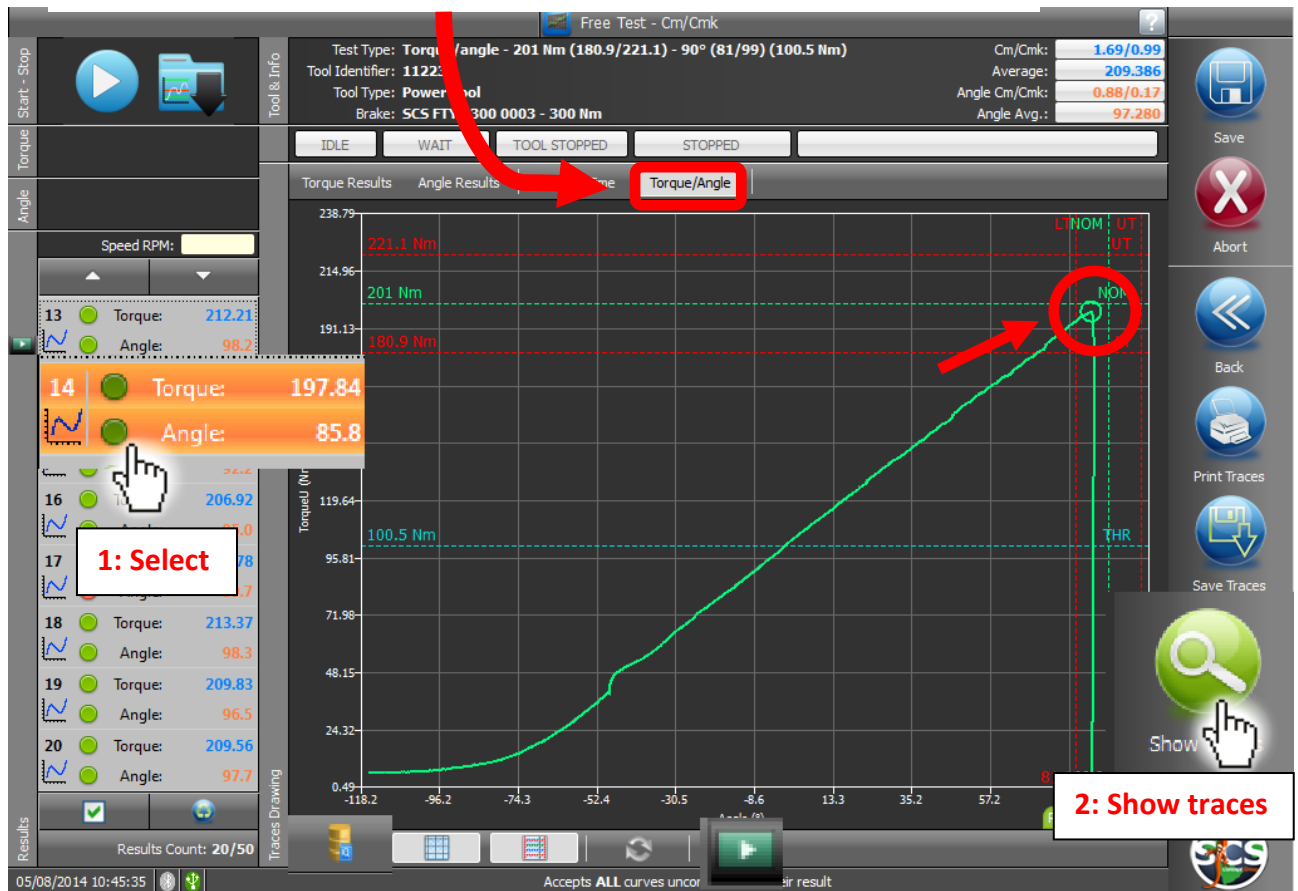
Angle results chart
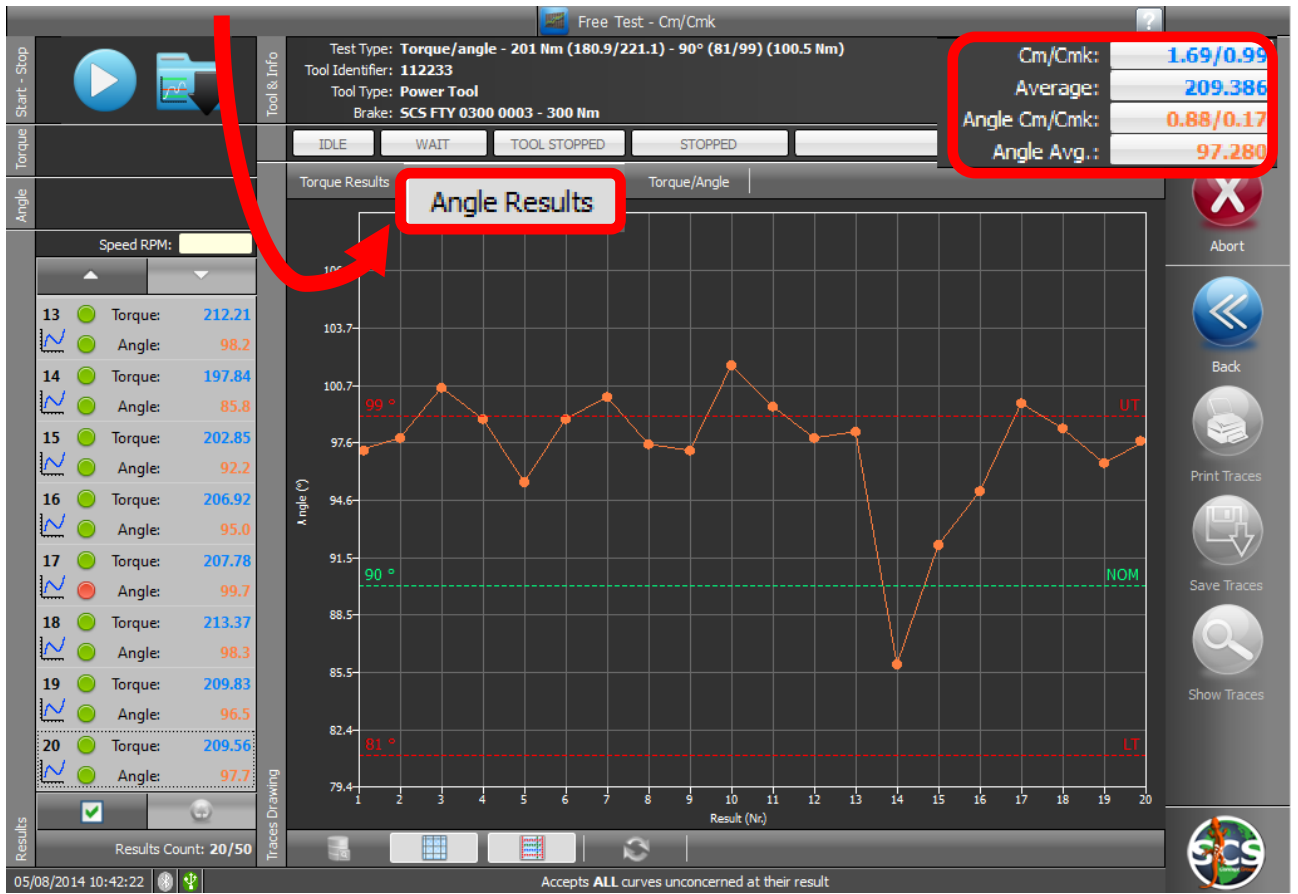
TORQUE/TIME CHART (latest sample for default)

TORQUE/ANGLE CHART (regarding a selected sample)

In the example the trace of sample n. 14 is shown.

FTY allows to compare curves graphically.
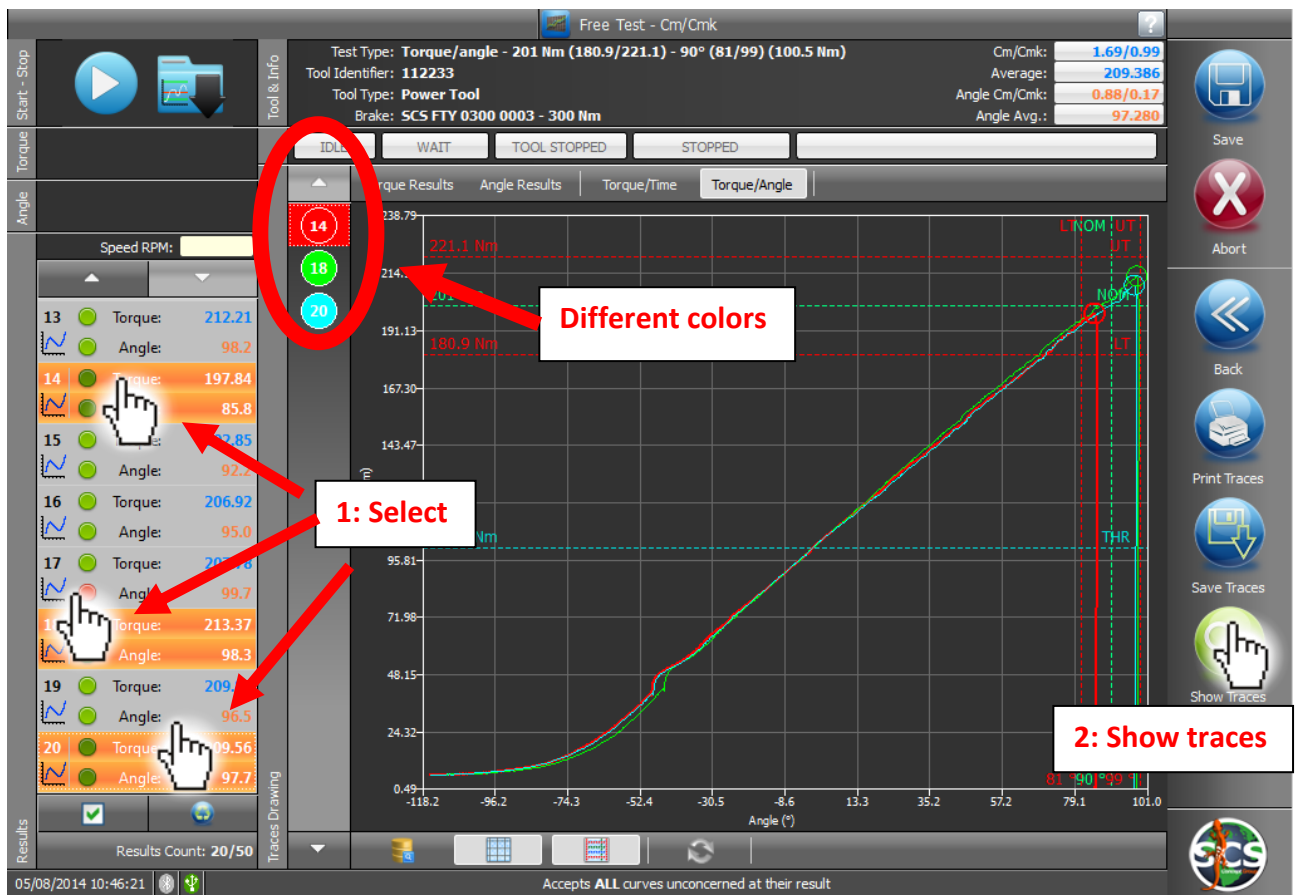
1-Select curves in left section.

2- Click "Show traces" button.

As you can see in the window below, each curve will have a different color (in our example, red for curve 14, green for curve 18, blue for curve 20).

Free Cm/Cmk test ADDICTIONAL FUNCTIONS

- Comparing curves
- Zoom/Unzoom
- Point coordinates & curve replay
- Save and update a test session.
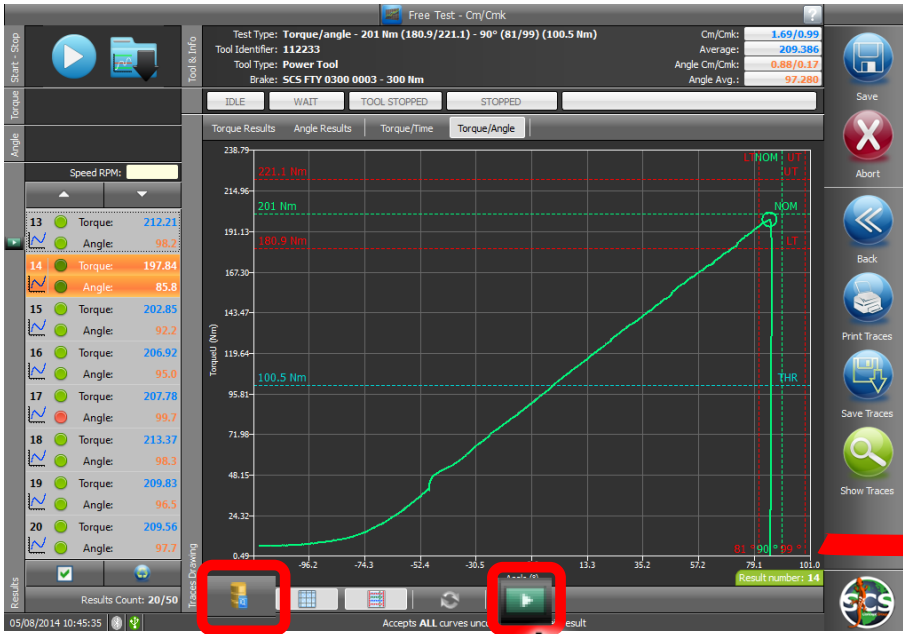
COMPARING CURVES .

ZOOM/UNZOOM

By using two fingers on touch-screen, operator can select an area to zoom; clicking selected button it is possible to unzoom.

"ZOOM"

"UNZOOM"

POINT CORDINATES & CURVE REPLAY

Click for coordinates

Click for replay mode

Start replay

Point coordinates
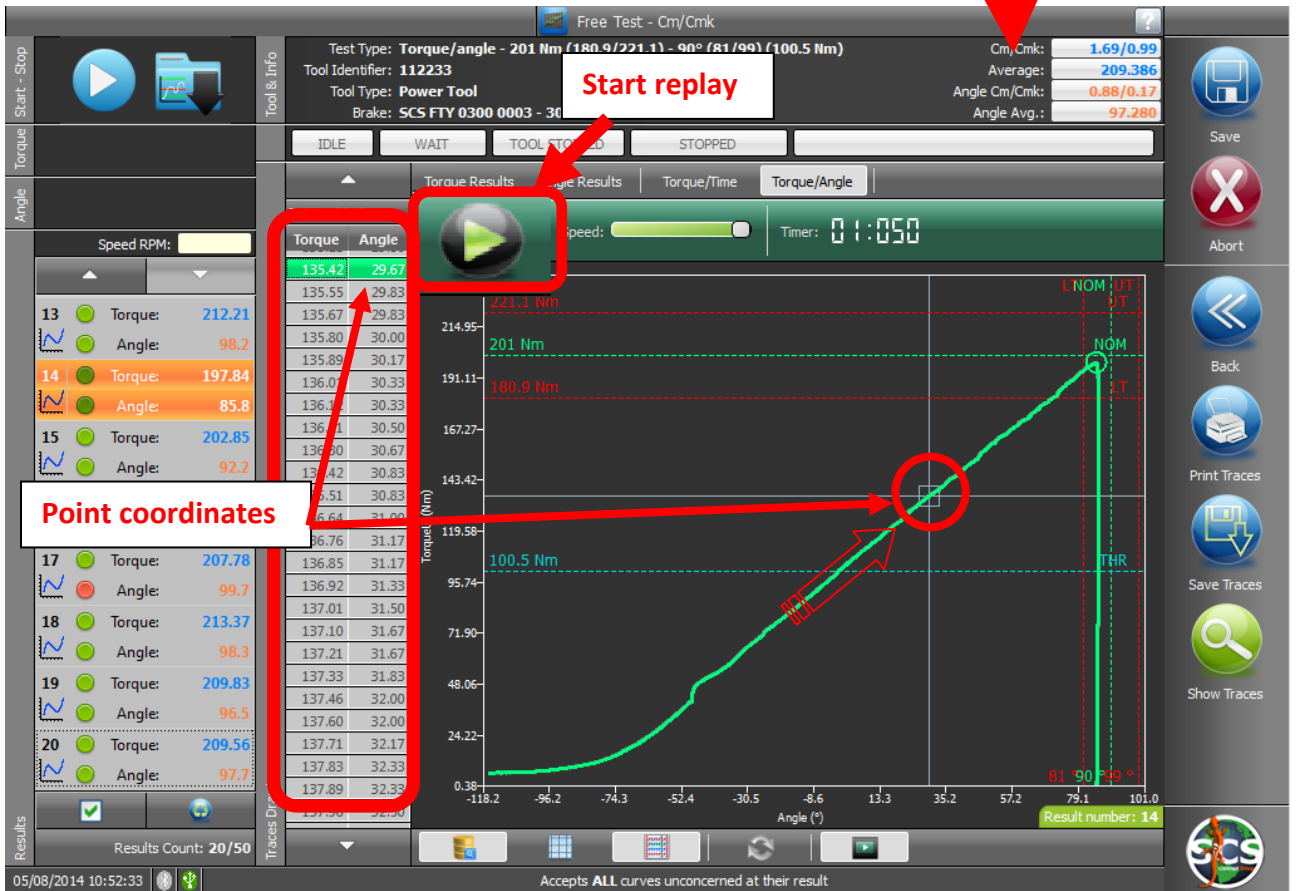
SAVE and UPDATE A TEST SESSION

After having completed a test session (in next example a 5 samples session), we can proceed in saving it as a new session, or as an update of an existing one.

CLICK "SAVE"

The following window will open. We will have 2 options:

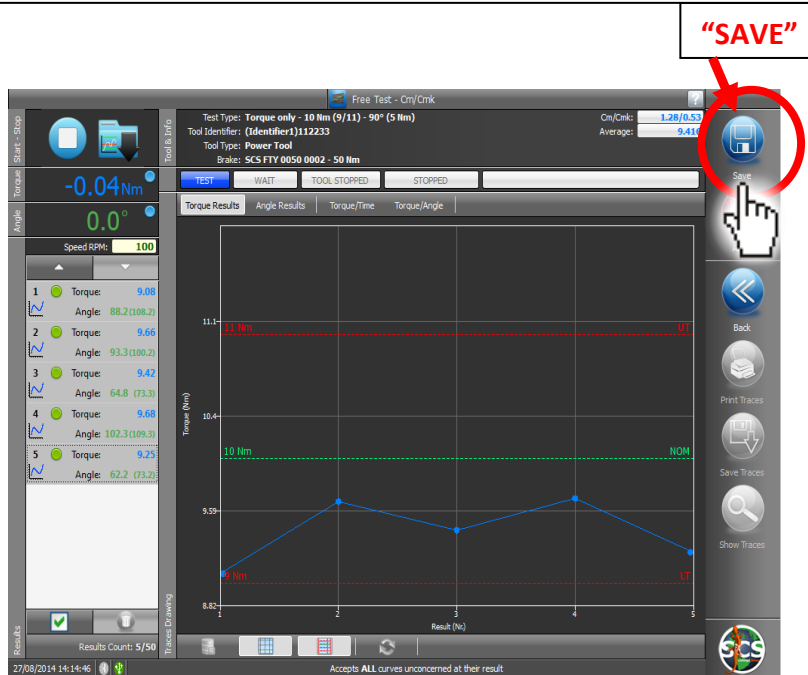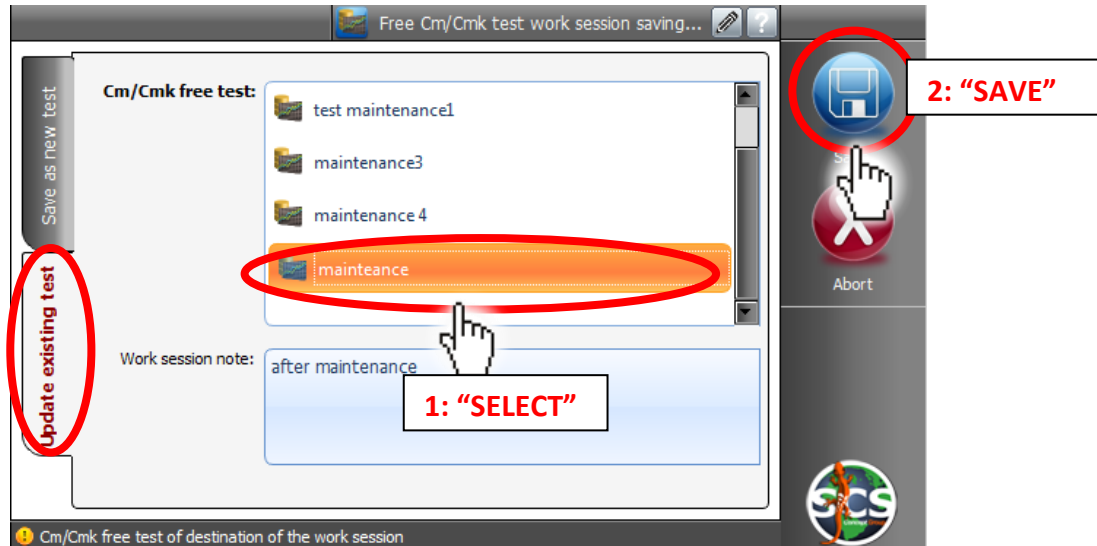**Option 1)** Select **"Save as new test"** on left side and fill the fields to identify the test session. Click "Save" for saving as a new test.

Option 2) Select **"Update existing test"** on left side, the system automatically will show the existing tests with same parameters, select one test and save; the software will save the new results in the selected test.

Torque/Angle Indicating Wrench Free Test

Once selected on main page "Free Cm/Cmk Test", it will appear a window where it is possible to select the type of tool to test and set-up all test parameters :

DataPro scans and recognizes automatically the connected devices (in that case 3 dynamic and 1 static transducers).

On the left section of the window it is possible to select the type of tool to test:

- Power Tool
- Pulse Tool
- Click Wrench
- Indicating Wrench
- Torque/Angle Indicating Wrench

On the right section of the window it is possible to select one of the connected transducers.

At this point operator can choice tool type, correct transducer, enter the test parameters on the central section of the window and click "EXECUTE".
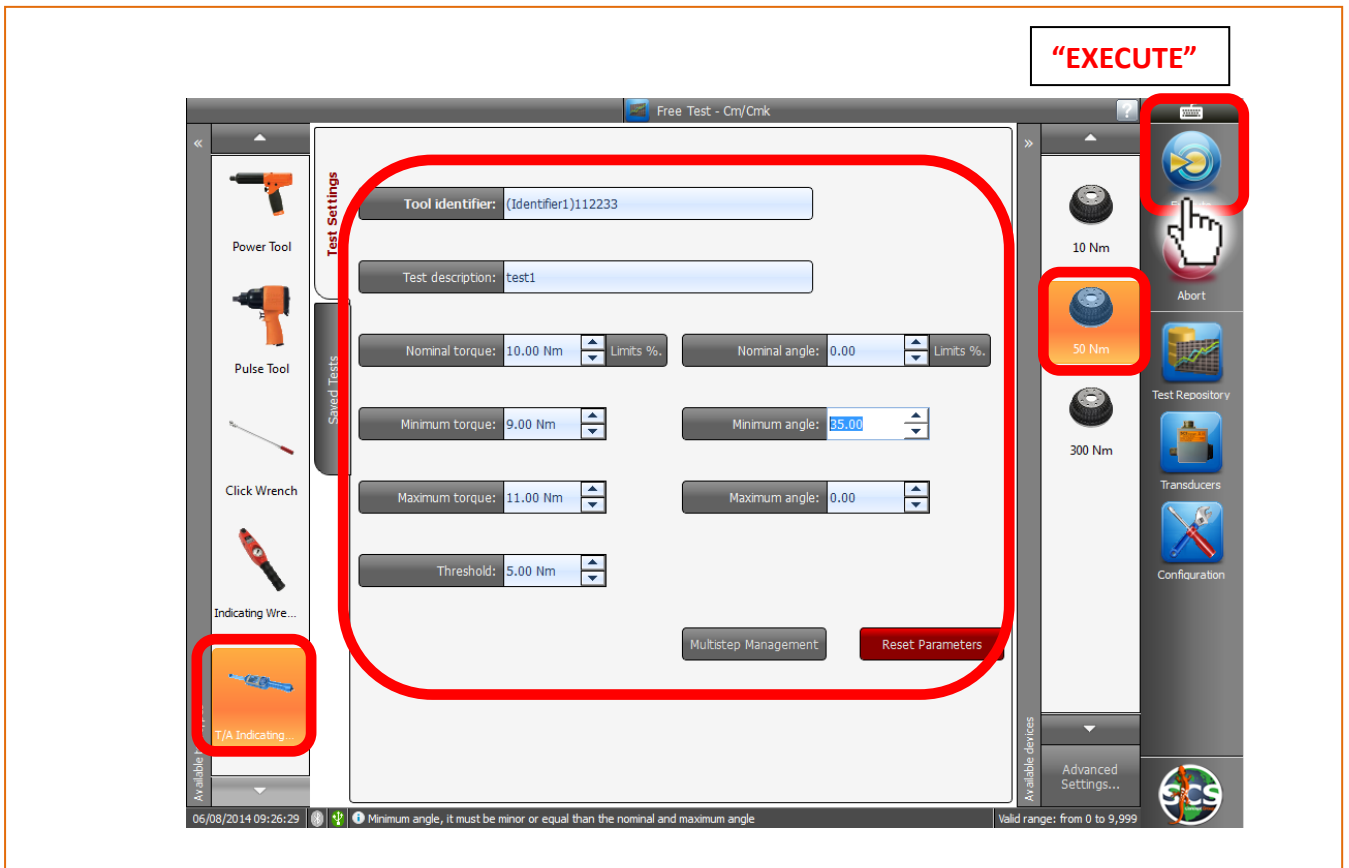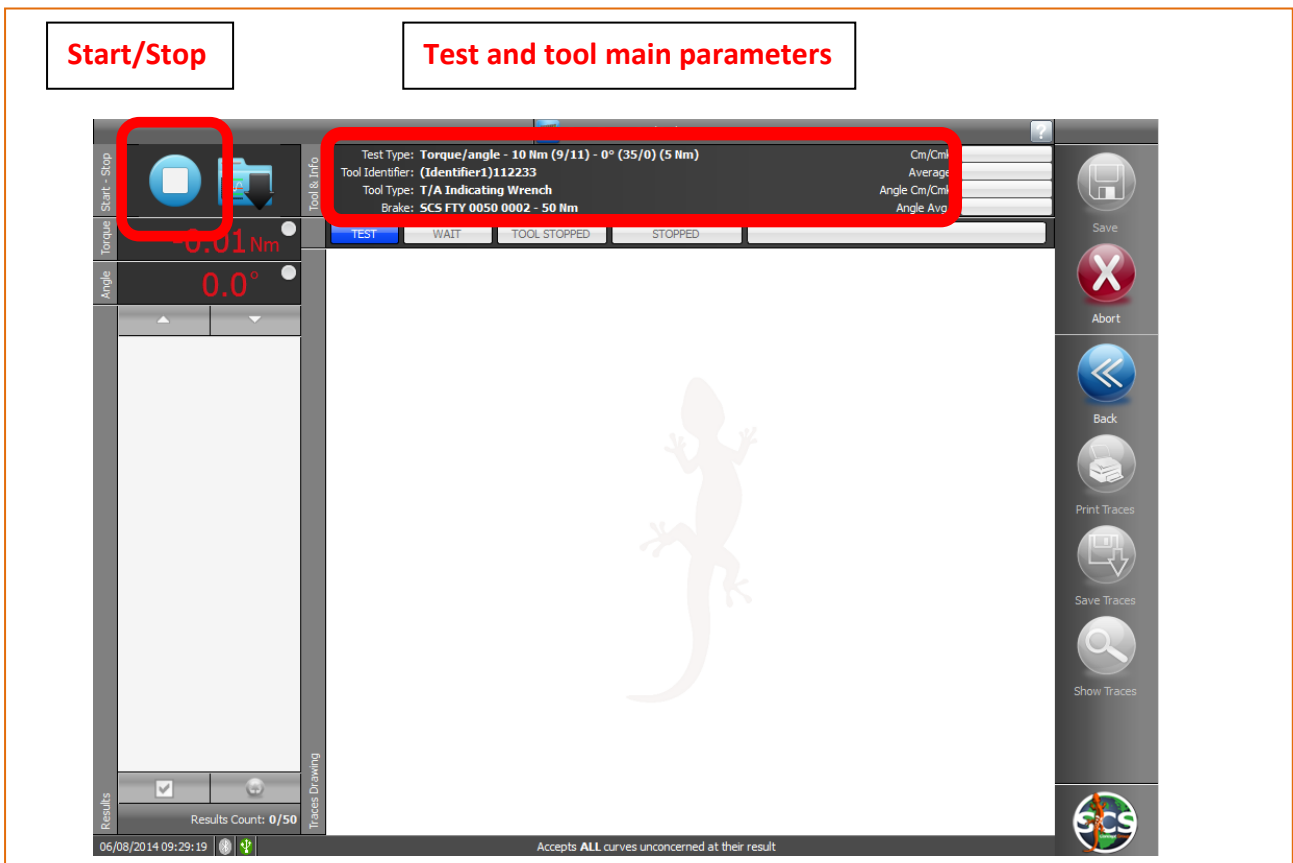
"EXECUTE"

Following window, "READY TO TEST", will open.

Start/Stop

Test and tool main parameters

Now the operator can engage the tool on correct transducer shaft, and start the test.
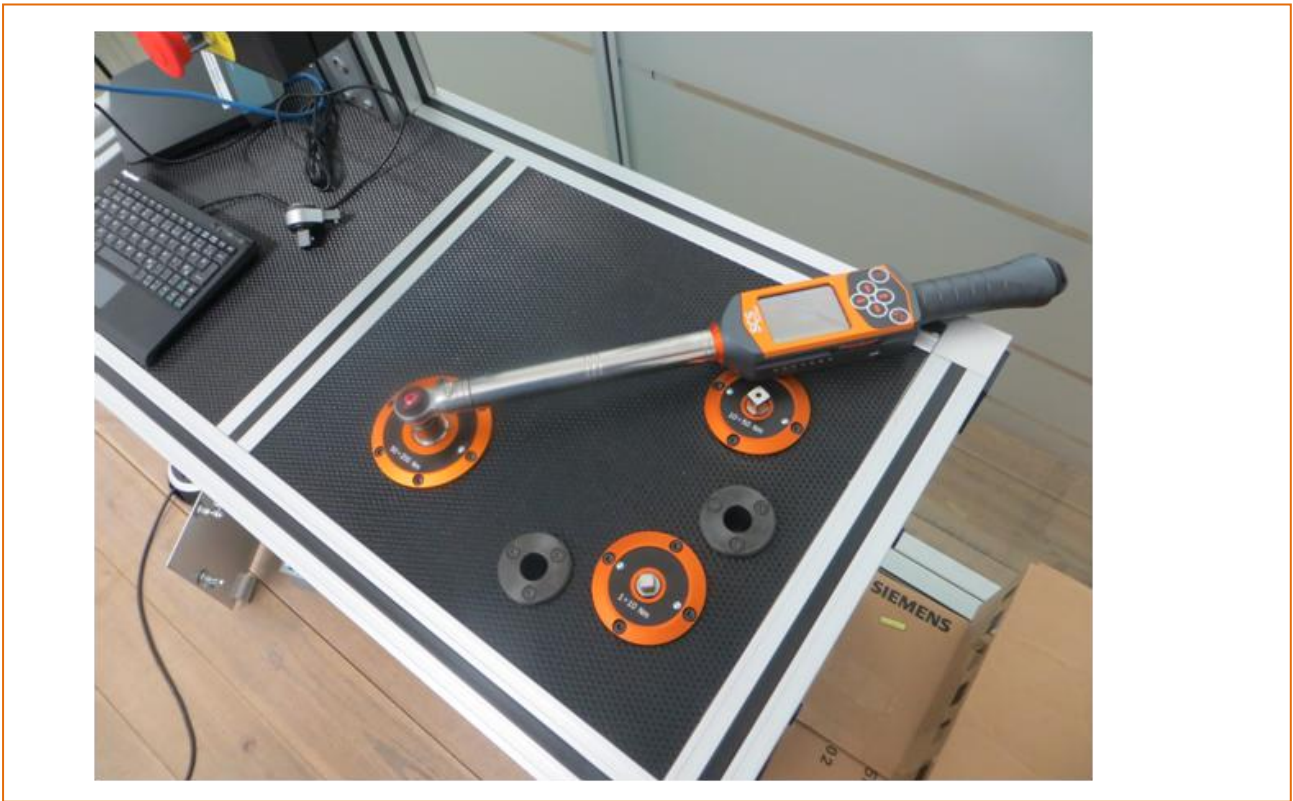
After first sample a window like the one below will appear.

In the window we have the following information:

- Torque results chart
- Torque Cm/Cmk
- Torque Average
- Angle Cm/Cmk
- Angle Average
- Torque and Angle values for each test.
  (Green led indicatse OK value, red led indicates NOK value red).
- Comparing curves
- Zoom/Unzoom
- Point coordinates & curve replay

T/A values

Torque results chart

T/A Cm/Cmk and related averages

Free Test - Cm/Cmk

Test Type: **Torque/angle - 23 Nm (20.7/25.3) - 45° (24.75/65.25) (11.5 Nm)**
Tool Identifier: **(Identifier1)112233**
Tool Type: **T/ indicating Wrench**
Brake: **CS FTY 0050 0002 - 50 Nm**
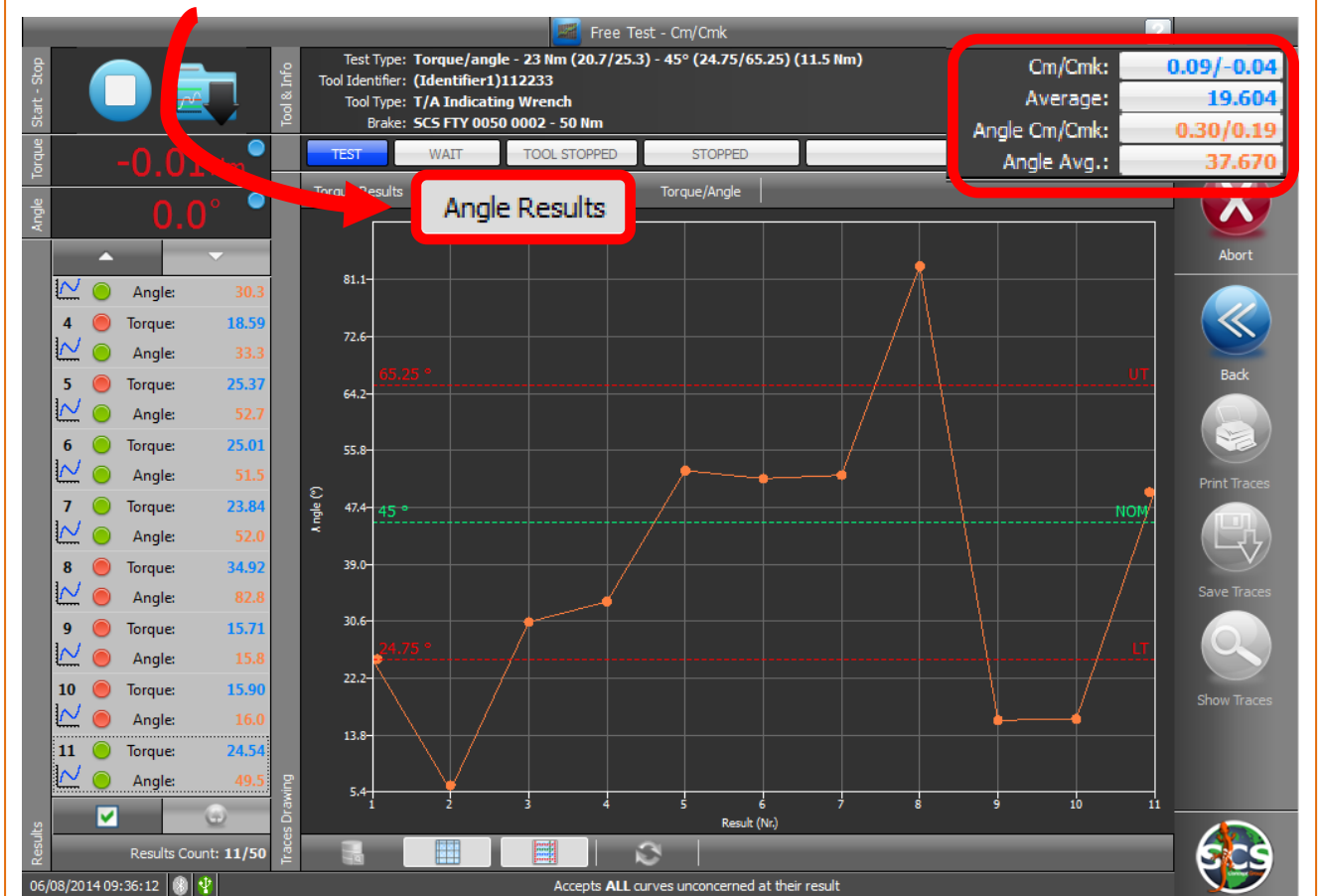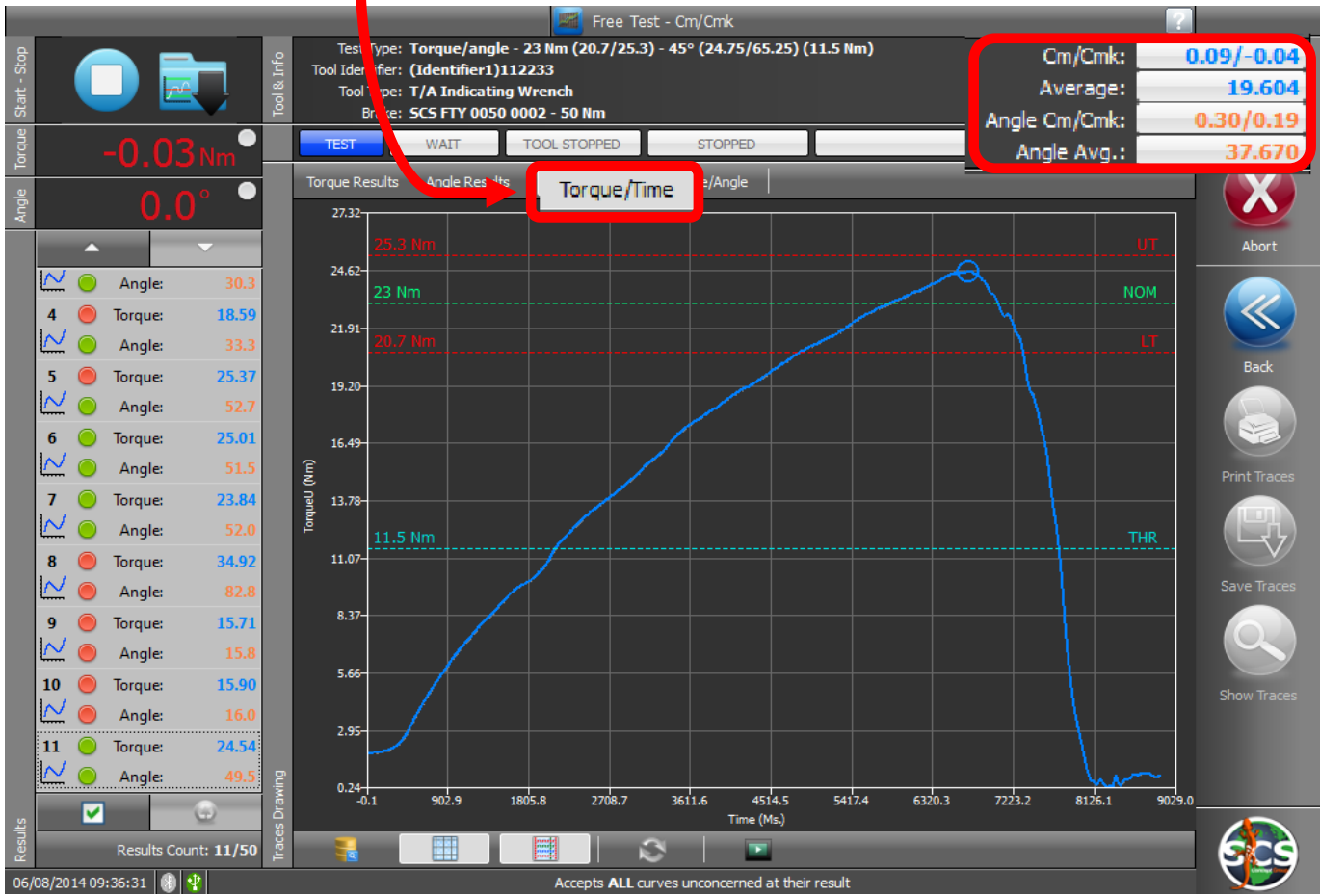
Cm/Cmk:	0.09/-0.04
Average:	19.604
Angle Cm/Cmk:	0.30/0.19
Angle Avg.:	37.670

TEST | WAIT | TOOL STOPPED | STOPPED

0.00 Nm
0.0°

Torque/Time Torque/Angle

Torque Results

		Angle:	30.3
4		Torque:	18.59
		Angle:	33.3
5		Torque:	25.37
		Angle:	52.7
6		Torque:	25.01
		Angle:	51.5
7		Torque:	23.84
		Angle:	52.0
8		Torque:	34.92
		Angle:	82.8
9		Torque:	15.71
		Angle:	15.8
10		Torque:	15.90
		Angle:	16.0
11		Torque:	24.54
		Angle:	49.5

Results Count: 11 /

34.0
30.3
26.6 — 25.3 Nm — UT
22.9 — 23 Nm — NOM
19.2 — 20.7 Nm — LT
15.5
11.9 — 11.5 Nm — THR
8.16
4.46

Torque (Nm)

Result (Nr.)
1   3   4   10   11

Abort

Back

Print Traces

Save Traces

Show Traces

Hide grid

Hide limit visualisation

06/08/2014 09:35:31   unconcerned at their result

Clicking the bar over the chart, operator can have some charts more, as shown in following windows:
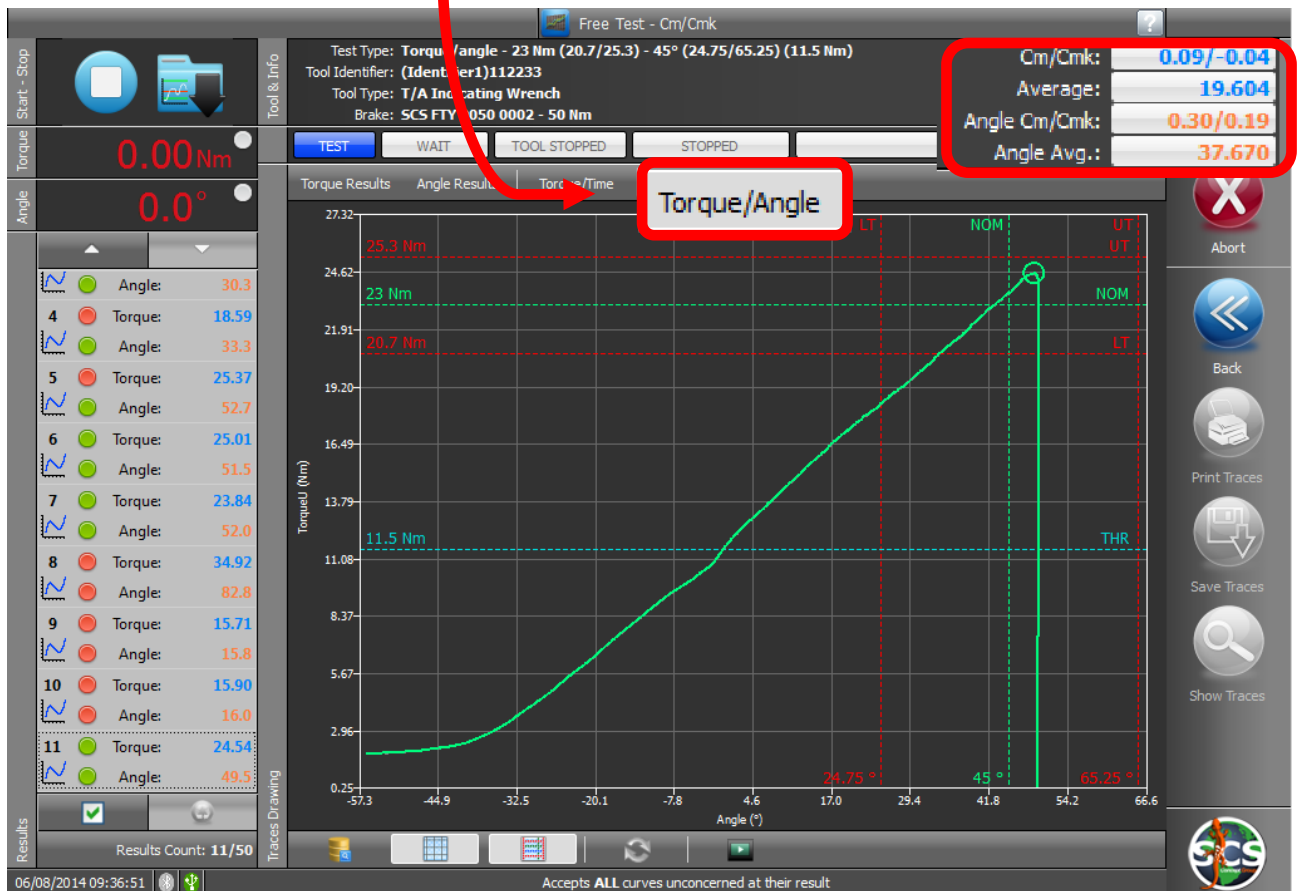
Angle results chart

TORQUE/TIME CHART (latest sample for default or selected one)

TORQUE/ANGLE CHART (latest sample for default or selected one)

ADDITIONAL FUNCTIONS:

See chapter: *Free Cm/Cmk test ADDICTIONAL FUNCTIONS*

- Comparing curves
- Zoom/Unzoom
- Point coordinates & curve replay
- Save and update a test session.

Click Wrench Free Test

Once selected on main page "Free Cm/Cmk Test", it will appear a window where it is possible to select the type of tool to test and set-up all test parameters :

DataPro scans and recognizes automatically the connected devices (in that case 3 dynamic and 1 static transducers).

On the left section of the window it is possible to select the type of tool to test:
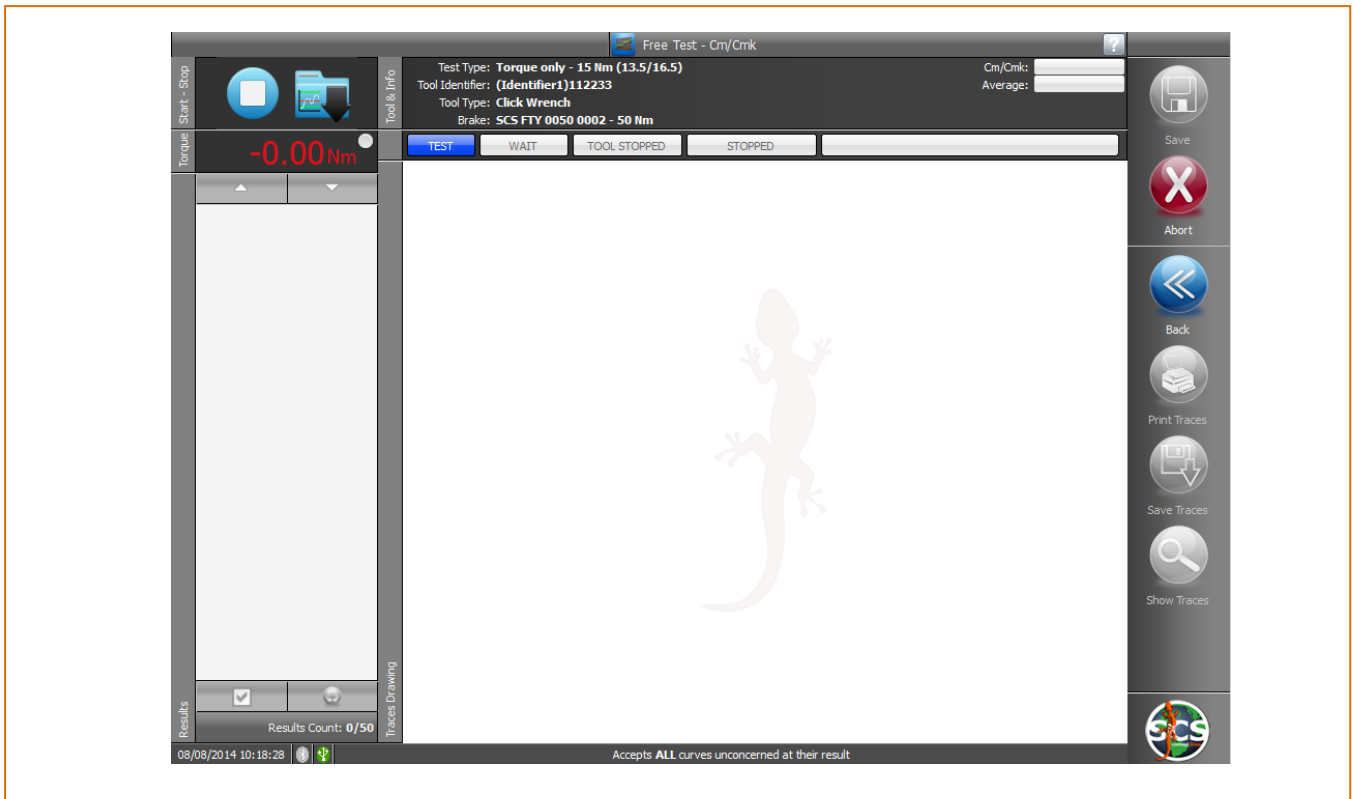
- Power Tool
- Pulse Tool
- Click Wrench
- Indicating Wrench
- Torque/Angle Indicating Wrench

On the right section of the window it is possible to select one of the connected transducers.

At this point operator can choice tool type, correct transducer, enter test parameters on the central section of the window (in this case 15Nm, +/- 10%) and click "EXECUTE".
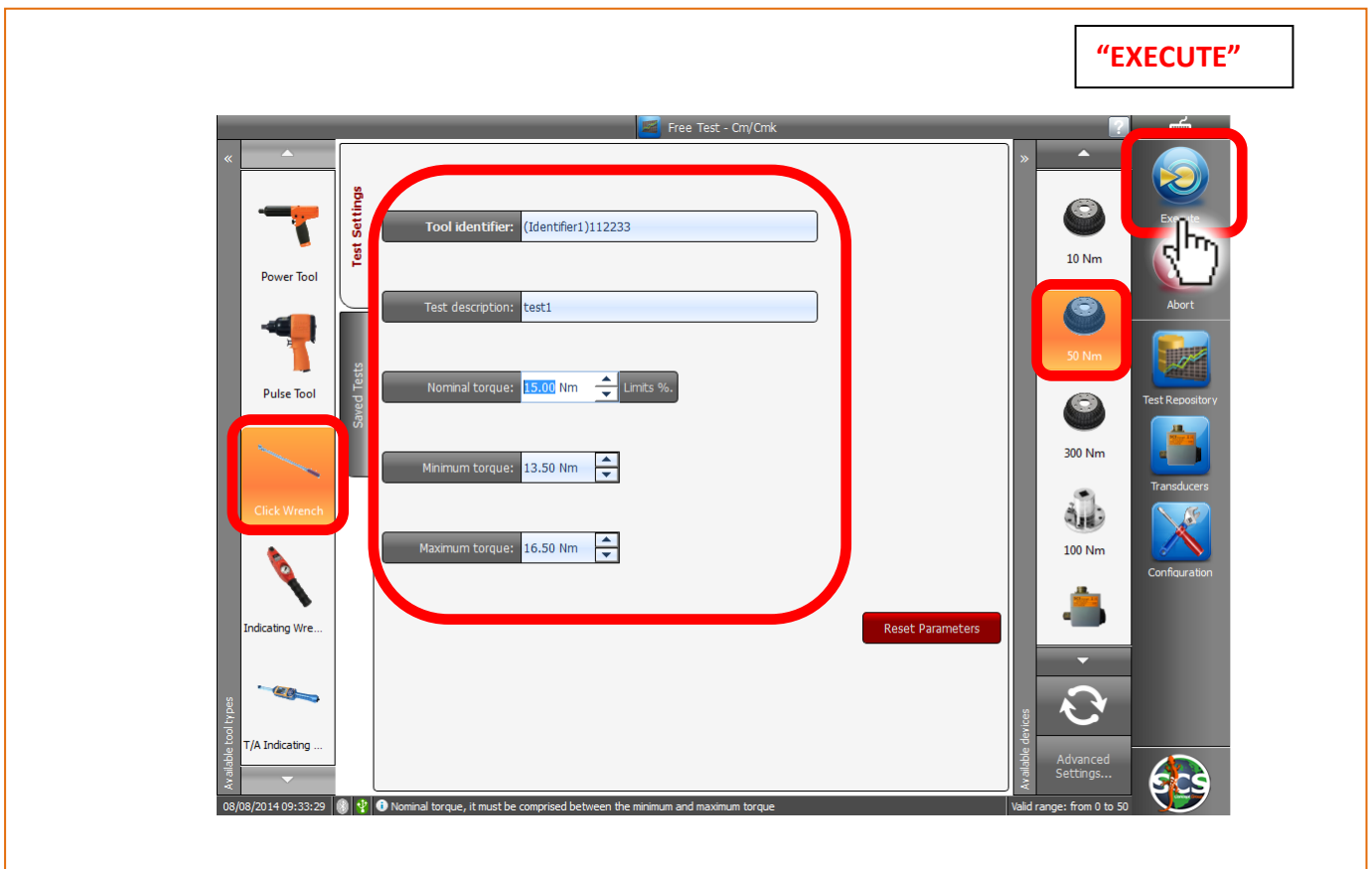
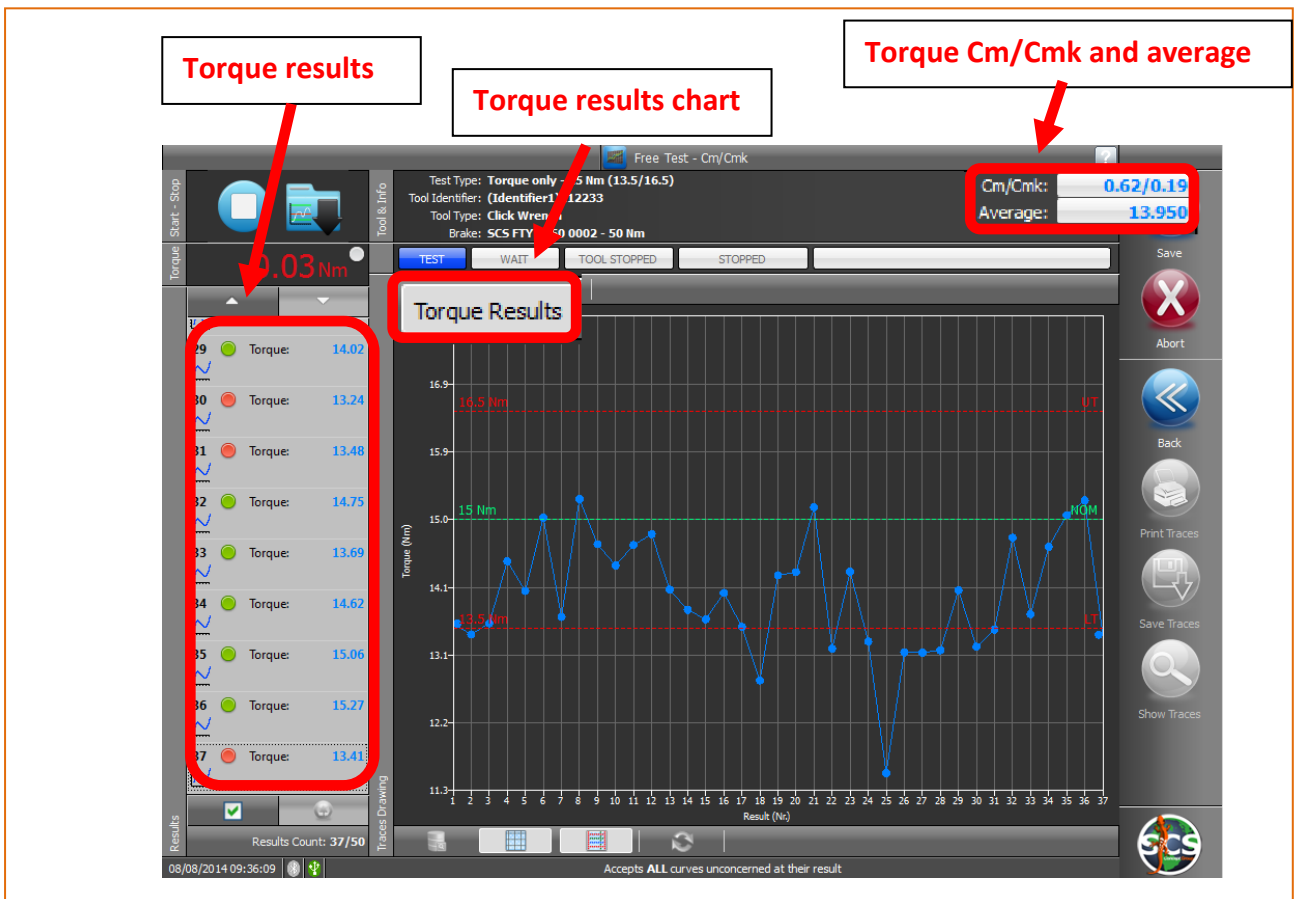Following window, "READY TO TEST", will open.

Now the operator can engage the tool on correct transducer shaft, and start the test.

After first sample a window like the one below will appear.

In the window we have the following main information:

- Torque results chart
- Torque Cm/Cmk
- Torque Average
- Torque value for each test.
  (Green led indicates OK value, red led indicates NOK value red).
- Comparing curves
- Zoom/Unzoom
- Point coordinates & curve replay

TORQUE/TIME CHART (latest sample for default or selected one)
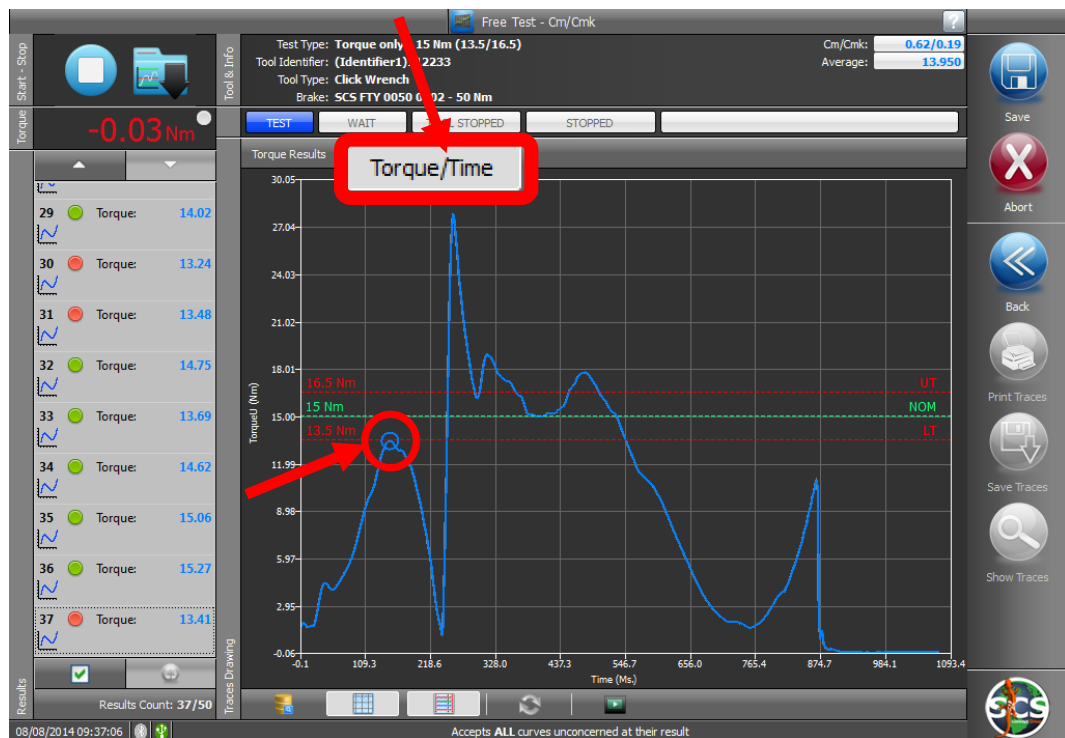
ADDITIONAL FUNCTIONS:

See chapter: *Free Cm/Cmk test ADDICTIONAL FUNCTIONS*

- Comparing curves
- Zoom/Unzoom
- Point coordinates & curve replay
- Save and update a test session.

Pulse Tool Free Test

Once selected on main page "Free Cm/Cmk Test", it will appear a window where it is possible to select the type of tool to test and set-up all test parameters :

DataPro scans and recognizes automatically the connected devices (in that case 3 dynamic and 1 static transducers).

On the left section of the window it is possible to select the type of tool to test:

- Power Tool
- Pulse Tool
- Click Wrench
- Indicating Wrench
- Torque/Angle Indicating Wrench

On the right section of the window it is possible to select one of the connected transducers.

At this point operator can choice tool type, correct transducer, enter test parameters on the central section of the window (in this case 17Nm, +/- 10%) and click "EXECUTE".
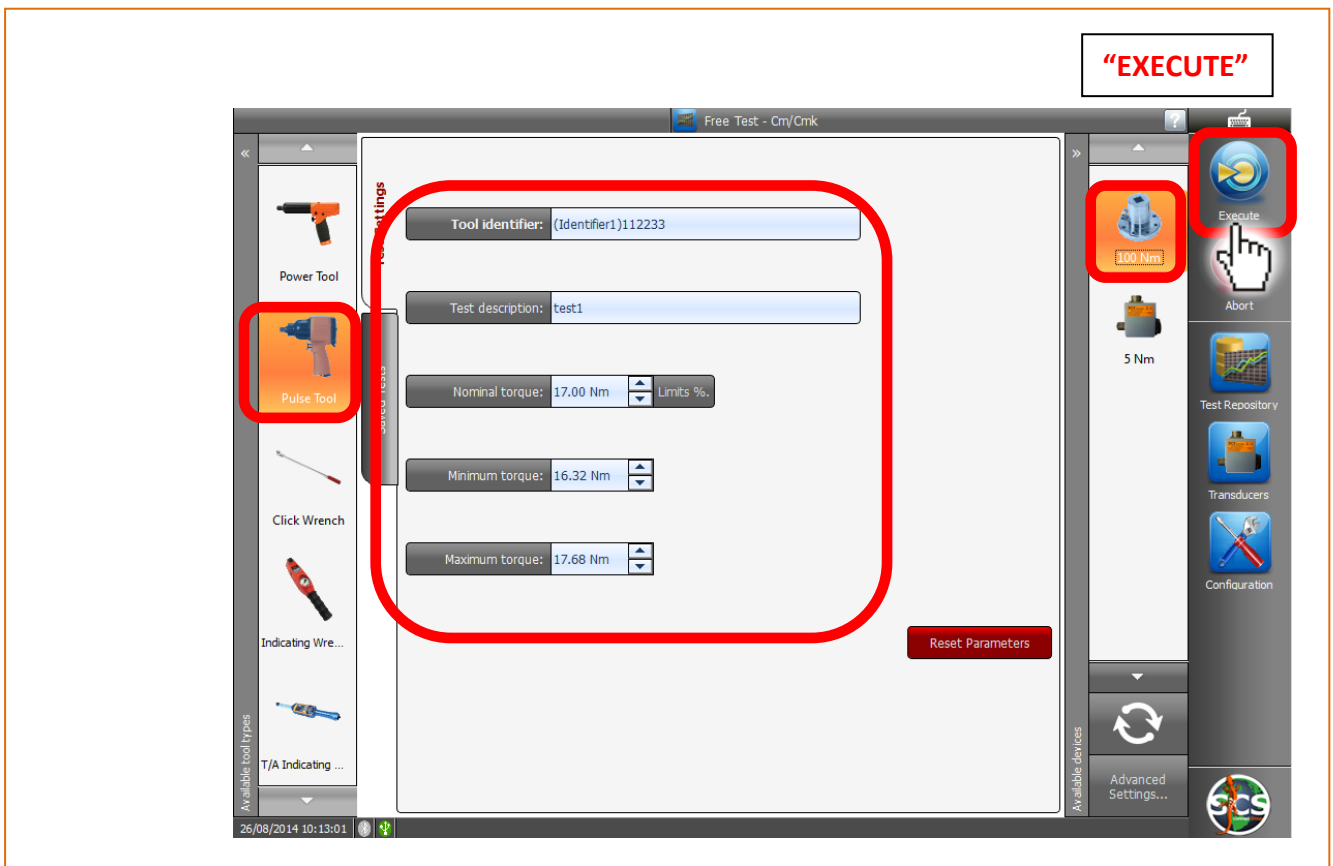
Following window, "READY TO TEST", will open.
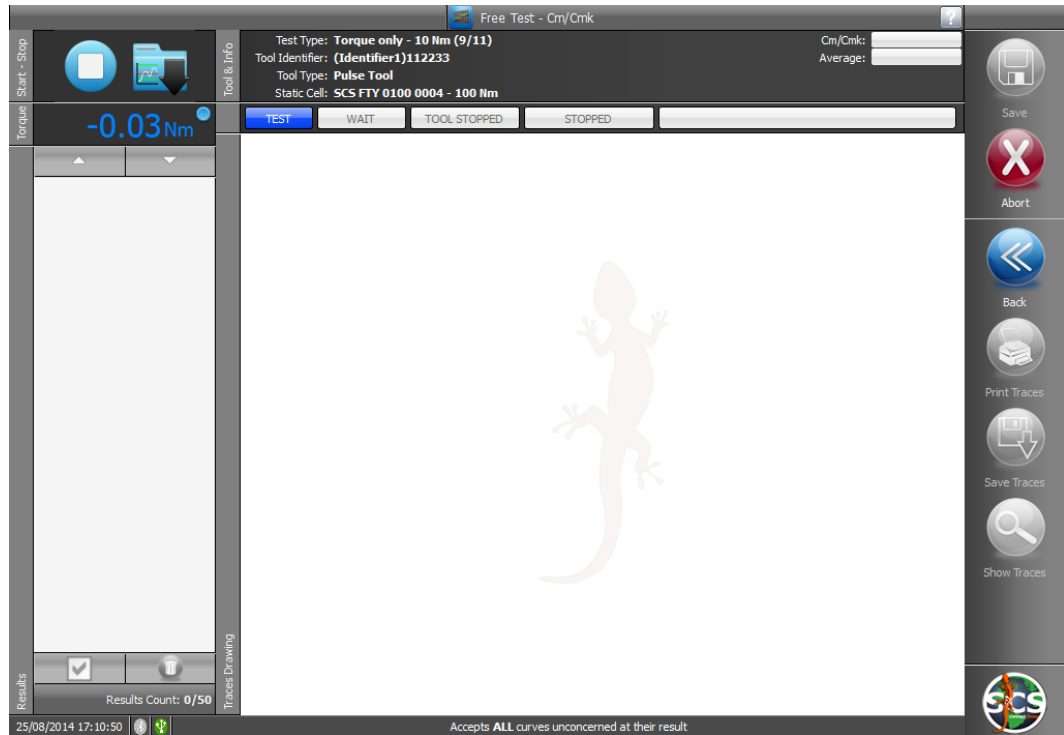
Now the operator can engage the tool on the correct transducer shaft, and start the test.

After first sample a window like the one below will appear.

In the window we have the following main information:

- Torque results chart
- Torque/Time chart
- Torque Cm/Cmk
- Torque Average
- Torque value for each test.
  (Green led indicates OK value, red led indicates NOK value red).
- Comparing curves
- Zoom/Unzoom
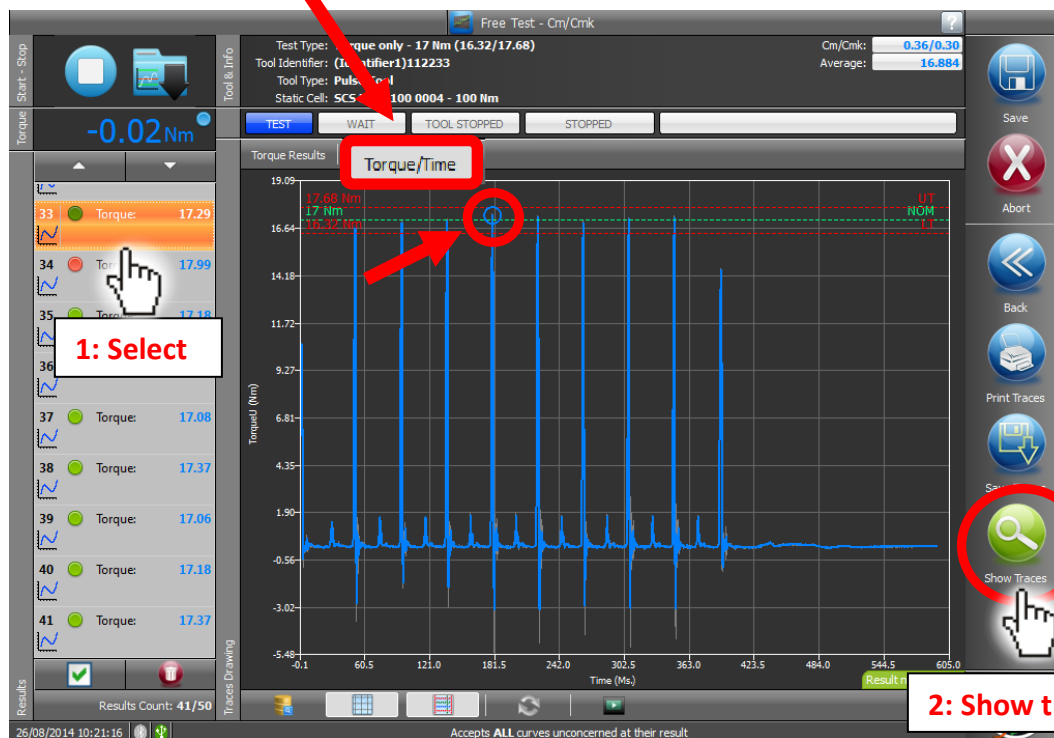- Point coordinates & curve replay

Torque results

Torque results chart

Torque Cm/Cmk and average

TORQUE/TIME CHART (latest sample for default or selected one)

1: Select

2: Show traces

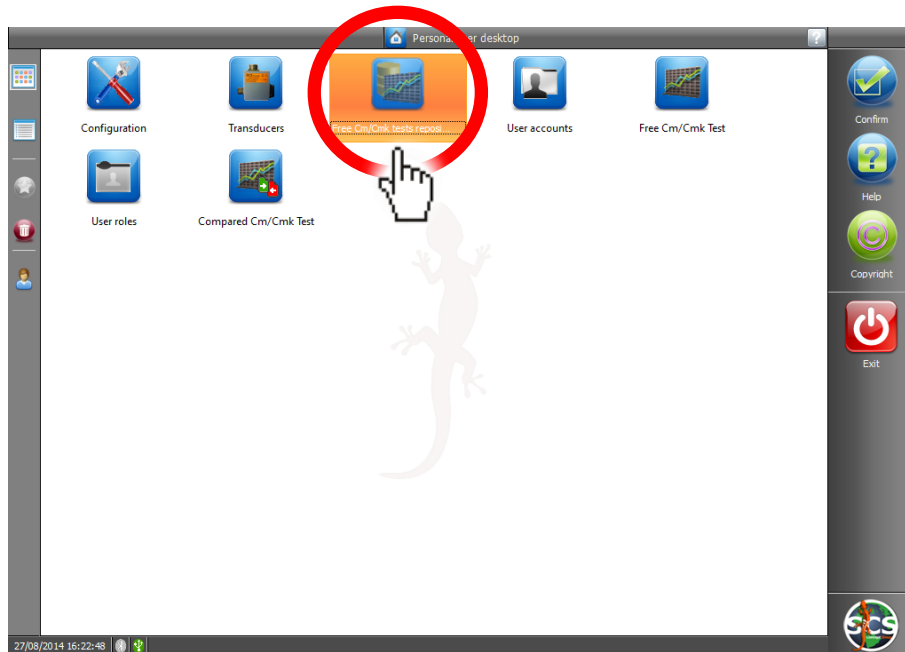In the example the trace of sample n. 33 is shown.

ADDITIONAL FUNCTIONS:

See chapter: *Free Cm/Cmk test ADDICTIONAL FUNCTIONS*

- Comparing curves
- Zoom/Unzoom
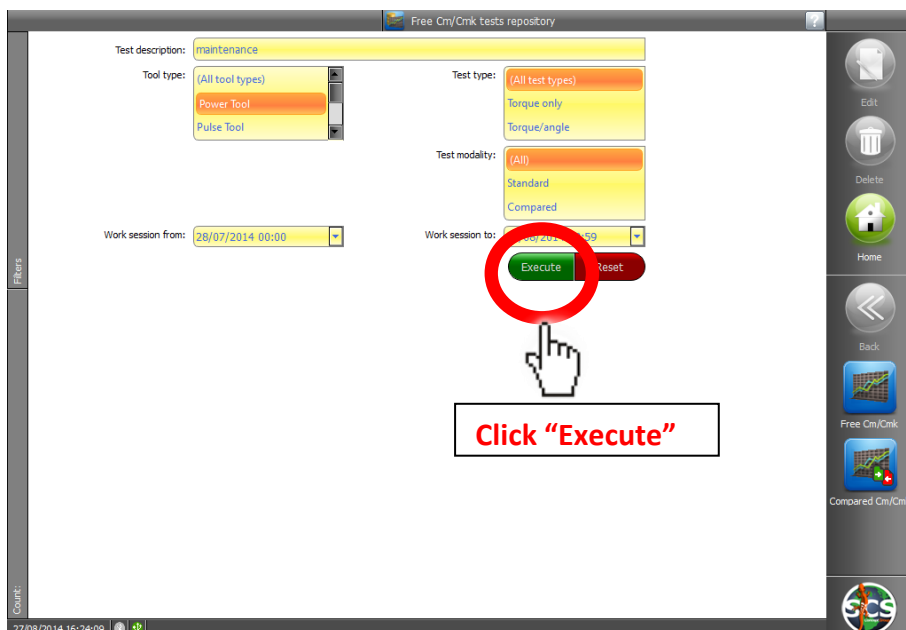- Point coordinates & curve replay
- Save and update a test session.

Repository functions

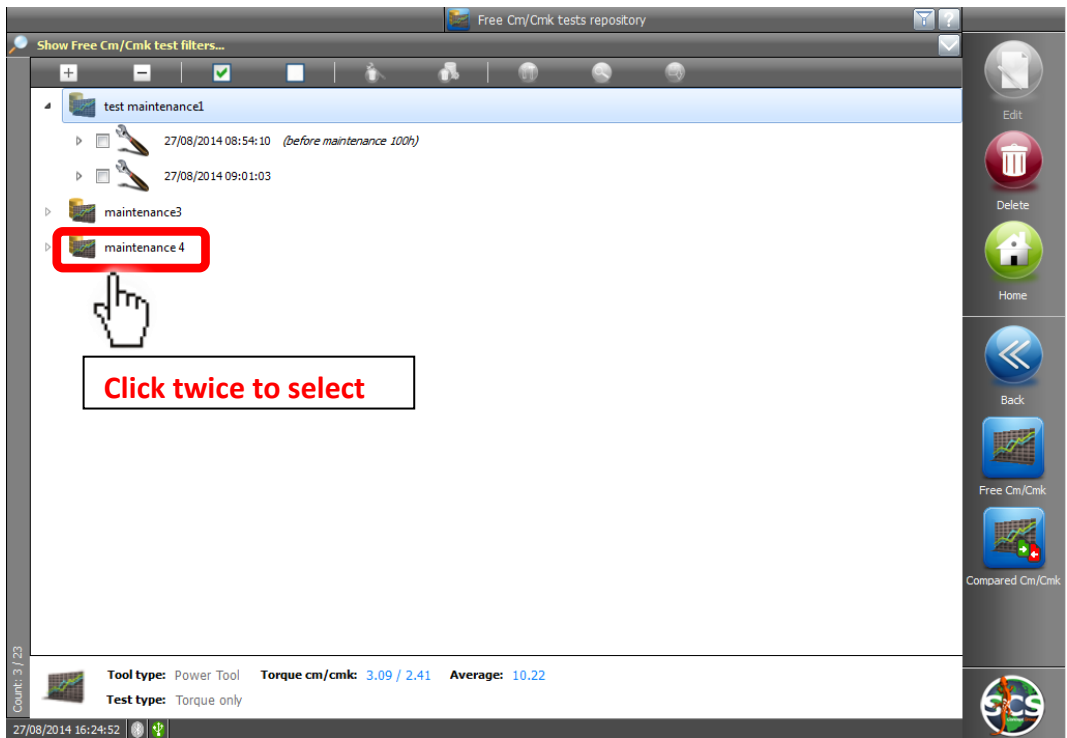This section allows to find out stored data, show and compare curves.

1) **Select the icon on main page**

2) **Define search filters and click "EXECUTE"**

Click "Execute"

3) Choice Test (in our example "maintenance 4")

The following window will open. We will have 2 options, 4a and 4b:

4a) Show one trace (fast way)

4b) Show more traces

1) Select one or more sessions

2) Click "Edit"

The following window will open:

1) Select

2) Click "Show traces"

5) Show transducer settings

COMPARED Cm/Cmk TEST

New features

Following the new features available in this version of the Data.Pro:

- at the end of every tightening, the **speed peak** is visualized (see **Figure 1**) until the next tightening starts. The speed information is visualized only when it is effectively meaningful (that means with only with the power tool), otherwise it is hidden in the test user interface.
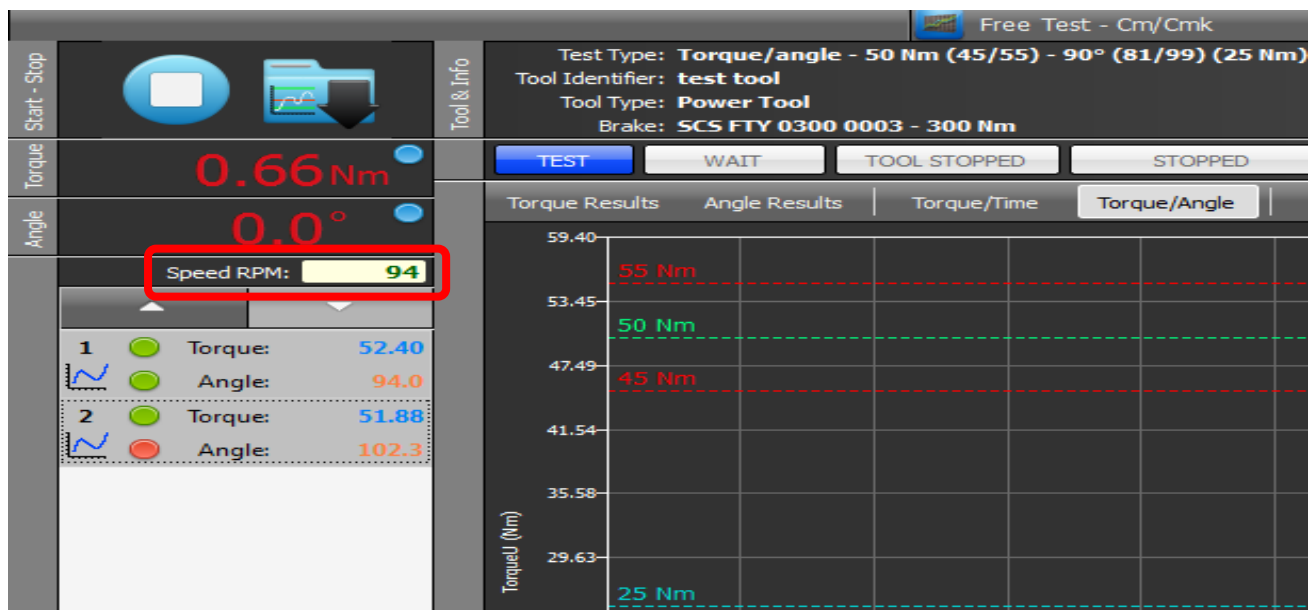
Figure 1

- now, in the **Configuration/Test** user interface, is possible to indicate the **default trace chart visualization modality** during the execution of a test. In fact, as default behaviour, the torque results chart is visualized at the end of every tightening but, it also possible, to maintain the visualization of the last chart typology (torque results, angle result, torque/time, angle/time) that the user has chosen (See **Figure 2**).
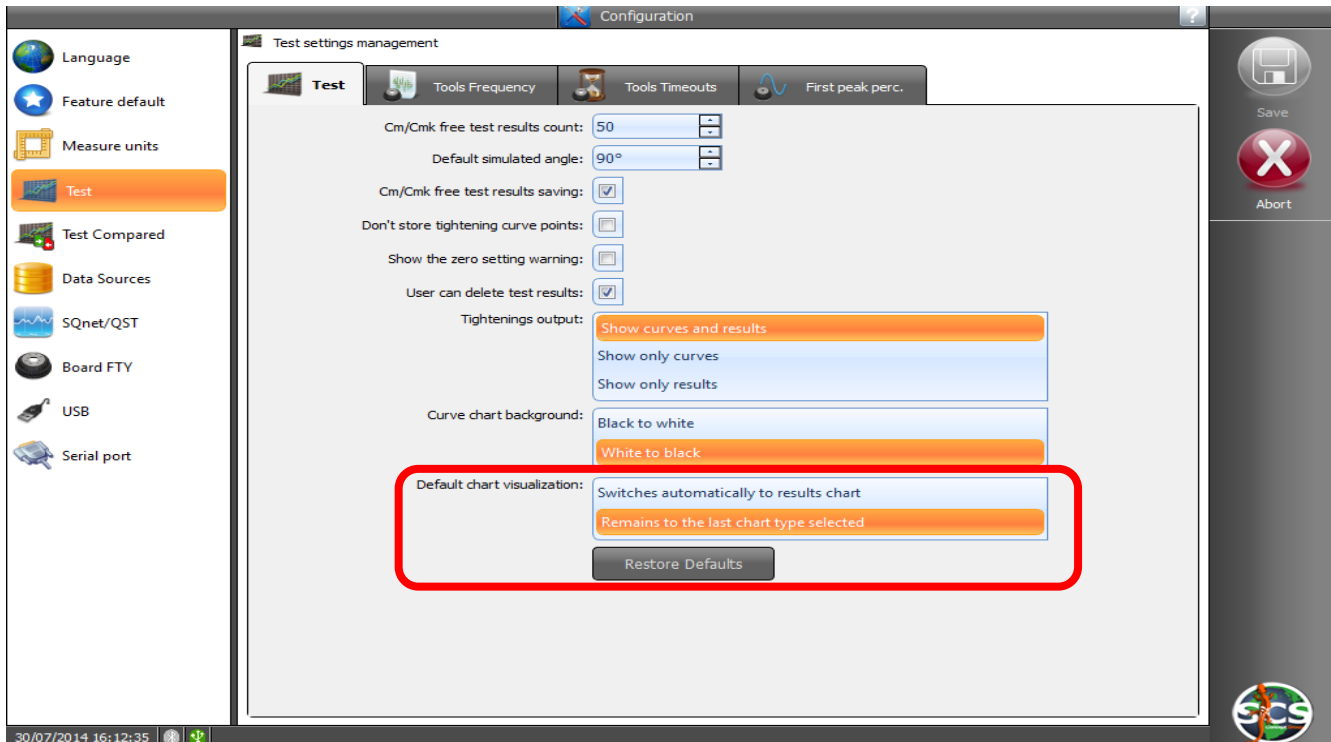
Figure 2

- in the Data.Pro version 1.1.7 has been added the reading/writing of new settings during the execution of tests received from external software (as SQNet or QSTorque). The new settings received (in the file *HostToBench.ini*) and utilized are the following:

o **tightening direction** (clockwise or counterclockwise), it is reported in the advanced settings of the device used to execute the test (See **Figure 3**). The operator is in any case able to modify it.
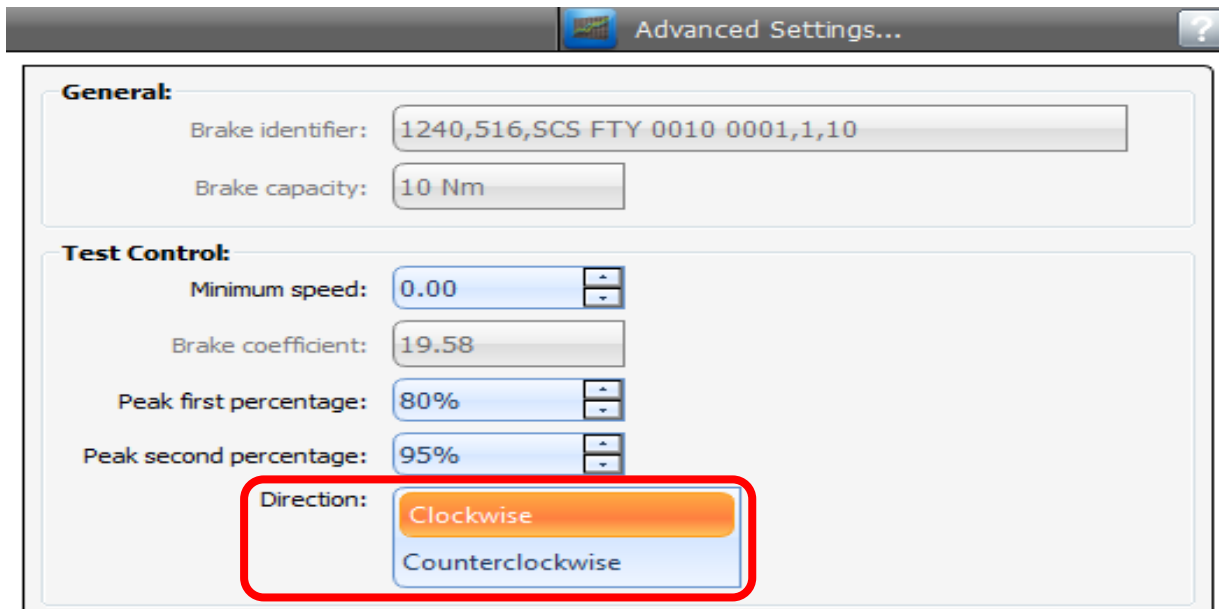
Figure 3

o **threshold position** (first or last), it specifics which threshold to use to for the angle calculation (the last is the default), this is meaningful only when the multi steps are

configured (See the next paragraph). It is reported in the main test settings screen
(See **Figure 4**) . The operator is in any case able to modify it.

Figure 4

o **multi steps** (or multi phases) settings, it specifics how the multi steps have been
configured, they are shown by a specific user interface (See **Figure 5**) and the
operator is able to further update them before to execute the test.

Figure 5

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- o the **target** of the test **measure**, if the test type is torque only and the device used to execute the test is a brake, this value is reported as the **simulated angle** in the main test settings screen (See **Figure 6**). The operator is in any case able to modify it.
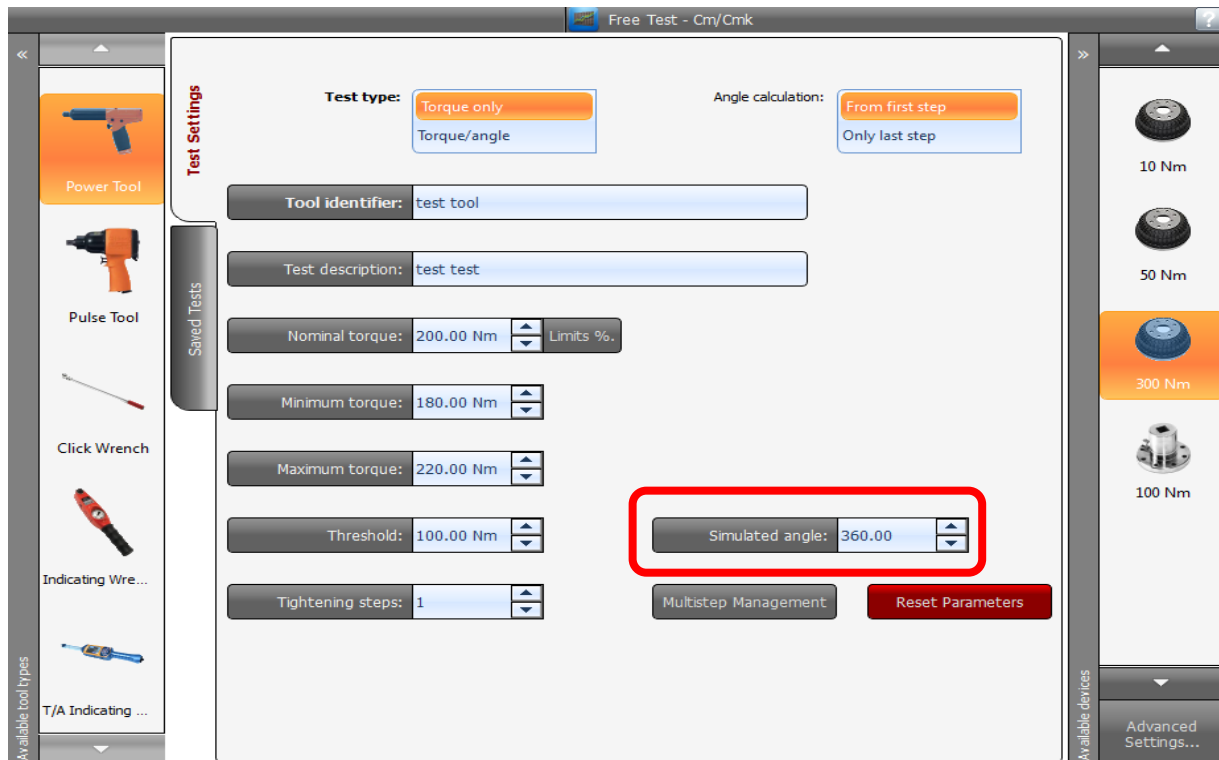
Figure 6

Instead, the new settings sent to external software (by the file *BenchToHost.ini*) are the following:

- o **multi steps** (or multi phases) settings, the operator is able to create or to modify the received multi steps settings, this new configuration is newly sent to external software by the output file with the results of the test just executed.

- o the **path** and the **name** of the **curve** for each result specified in the output file. The format of this file and the management of the tightening curves is specified in the next section.

- in the **Configuration/SQNet/QST** has been added the **Storing Curves** section (See **Figure 7**). With this user interface, when a test is executed by an external software, is possible to configure if the tightening curves corresponding at every result must be exported to file or not. If the trace must be exported is possible to configure the storing path and the format of the files. It may be the **QSTorque format** (ASCII file having extension **.txt**) or the **SCS format** (binary format having extension **.crv**). Every time that the Data.Pro starts, all files present in the output path of the tightening curves, are removed. Instead, in base at the output format chosen, the corresponding files are removed before the start operation of the test. This means that the files must be read from the external software caller before to launch the execution of the next test otherwise they will be lost.

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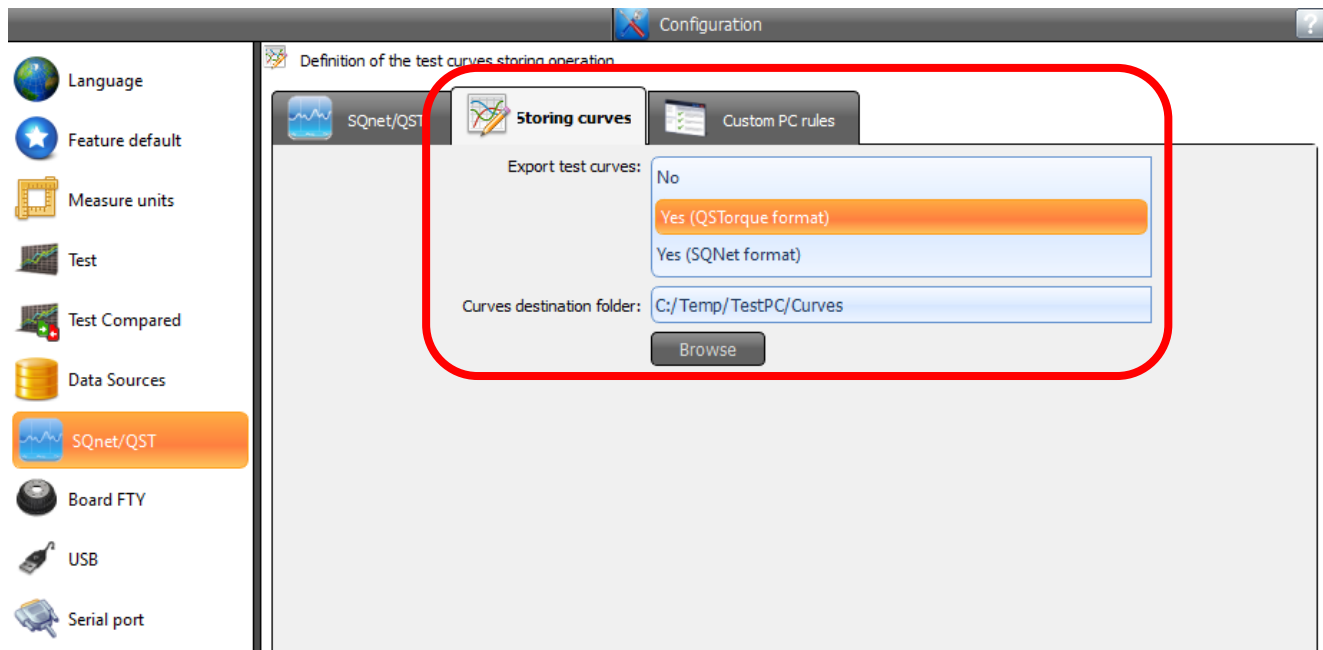
Figure 7

- in the **Configuration** on the **SQNet/QST** section has been added an option that specifies if is necessary to do a **backup** of the files received from the external software (*HostToBench.ini*) and sent to the external software (*BenchToHost.ini*). The files are stored in the subdirectory **\Backup** created in the same path specified to write the output files BenchToHost.ini (See **Figure 8**).
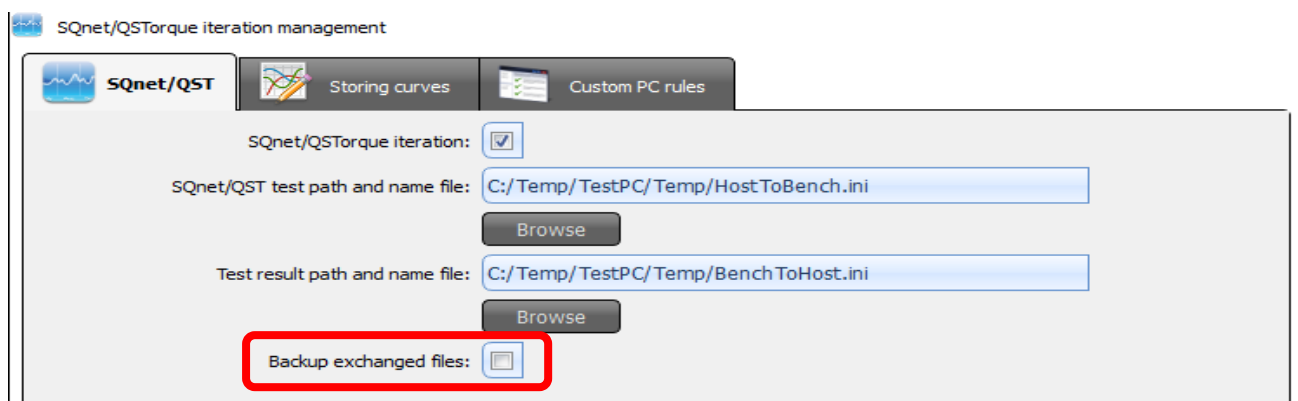
Figure 8

- if a test is executed by a **brake**, the tool chosen is a **power tool** and is a **torque only** test type, into results table user interface of the test is shown also the **nominal angle** (See **Figure 9**). This value is obtained by this formula:

  *((Nominal torque - Threshold) / (Torque result - Threshold)) * Angle result*

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Figure 9

- the most complex feature added in the Data.Pro 1.1.7 is the **compared test** management. This feature allows, at the end of every tightening during the test execution, to accept from an external tool its corresponding result. The results received from the external tool are shown in the results table of the test user interface placed side by side at the results obtained from the device type selected in the bench (brake, static cell, external transducer and so on…). There two ways to receive the results from an external tool:
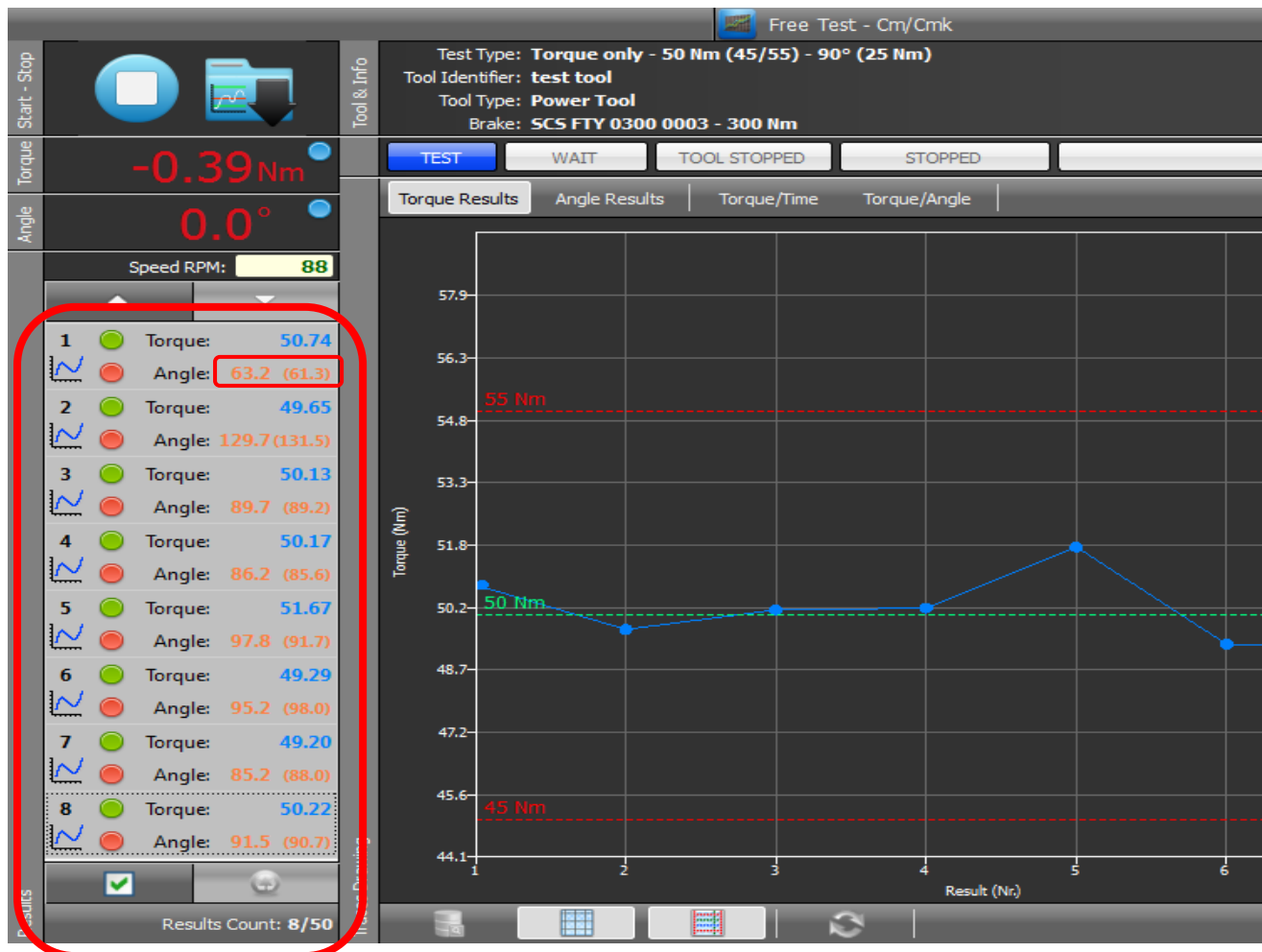
  - in the first case is used an external software, called *ToolTray*, this software reads the result of the external tool and writes it in a text file, the Data.Pro reads the content of this file, shows the result in the results table in the test user interface and finally it deletes the file. There are two versions of the *ToolTray* utility, one is released with the QSTorque software and it is able to read the results of the external tools configured with this software, the second, named *SCS_ToolTray*, allows to obtain the results of the SCS tools (for example the Freedom3 wrench), this utility for the moment is not still available.

  - in the second case, the data entry of the external tool result is managed by a specific user interface of the Data.Pro (See **Figure 10**). The same user interface (but with a warning message) is used when the *ToolTray* utility is not able to read the result of the external tool and the manual data entry is enabled (See **Figure 11**) as specified following where the compared test settings available in the software configuration are explained in detail.
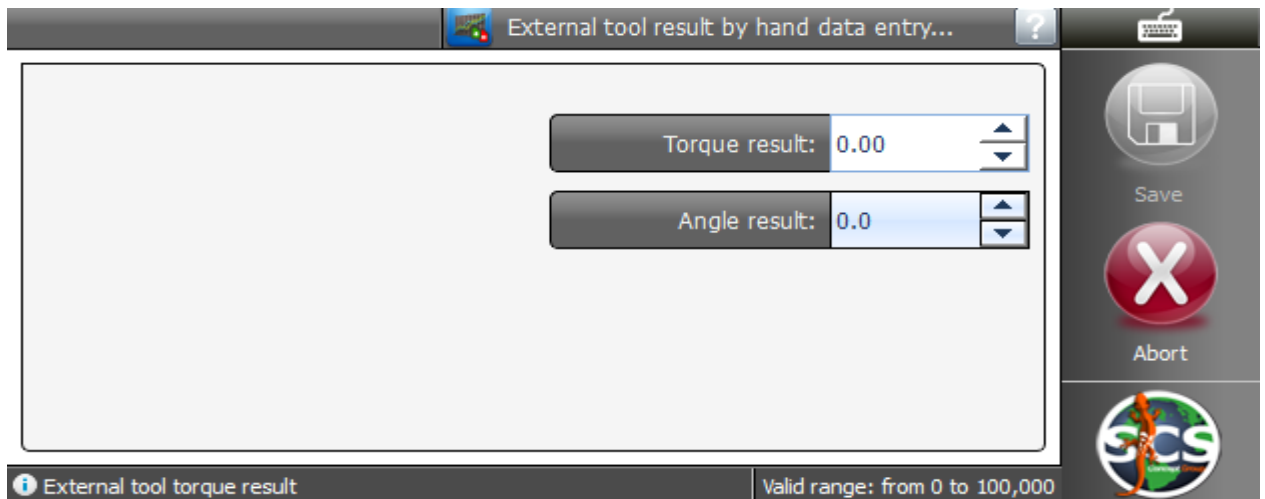
Figure 10
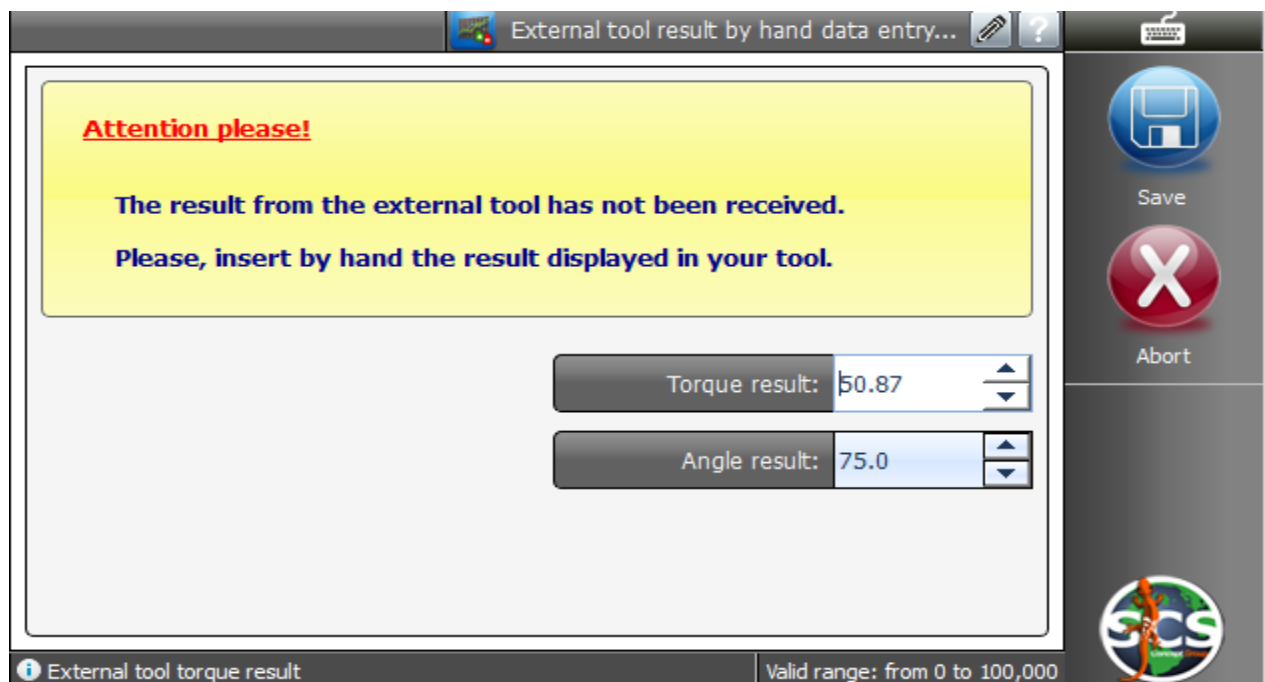
Figure 11

Following some behaviors and tips regarding this new feature:

- o to execute a **free cm/cmk compared test** is necessary to click on this icon:

Compared Cm/Cmk Test

- o the results received from the external tool (or inserted manually) are shown in the results table of the test management user interface (See **Figure 12**), it's also possible to hidden them by the specific button (See **Figure 13**).

Figure 12
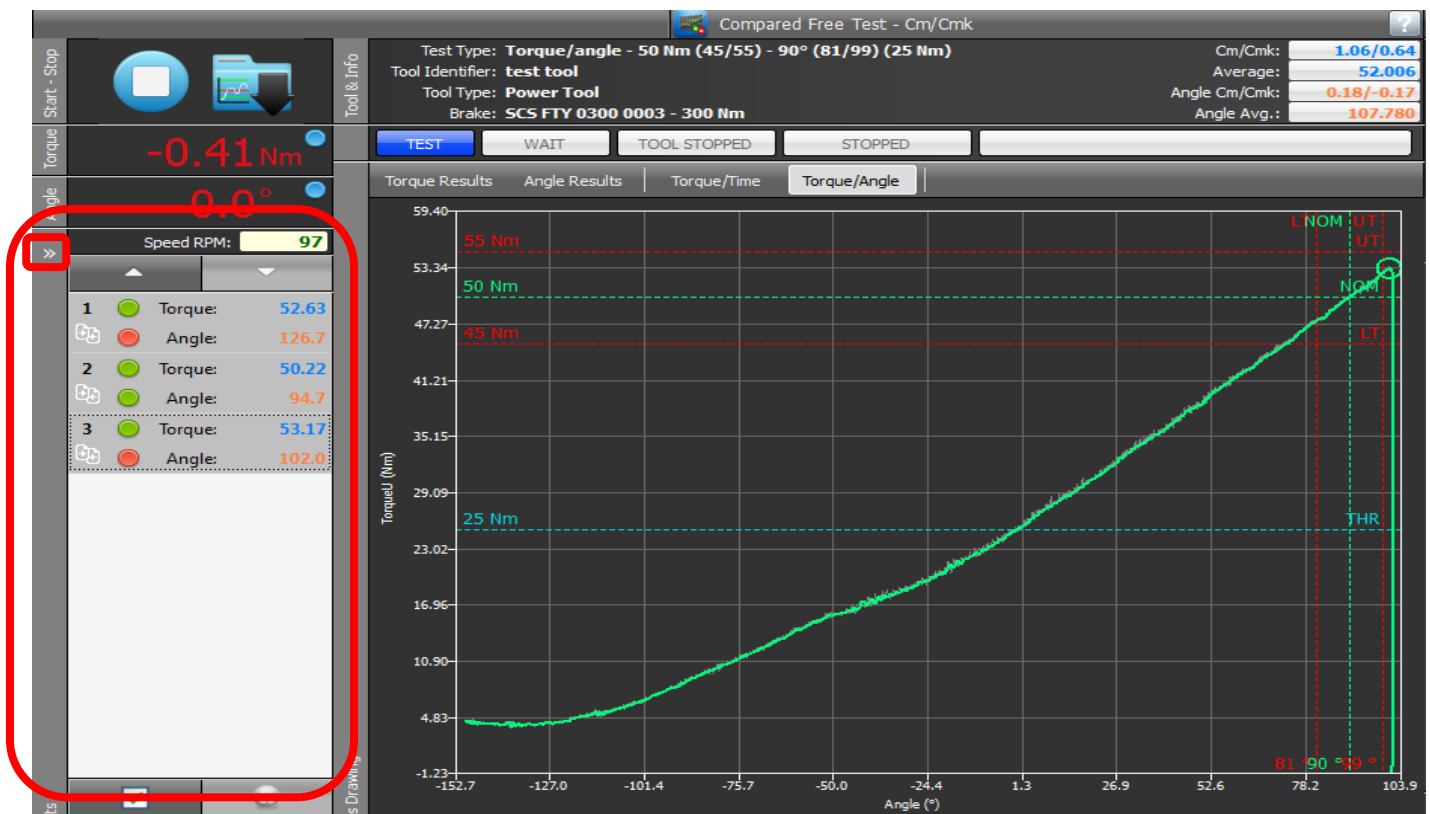
Figure 13

- o it's also possible to save in the Data.Pro database the compared free Cm/Cmk test, in this case also the results received from the external tool are saved and will be possible to consult them by the Free Cm/Cmk tests repository feature (See **Figure 14**).
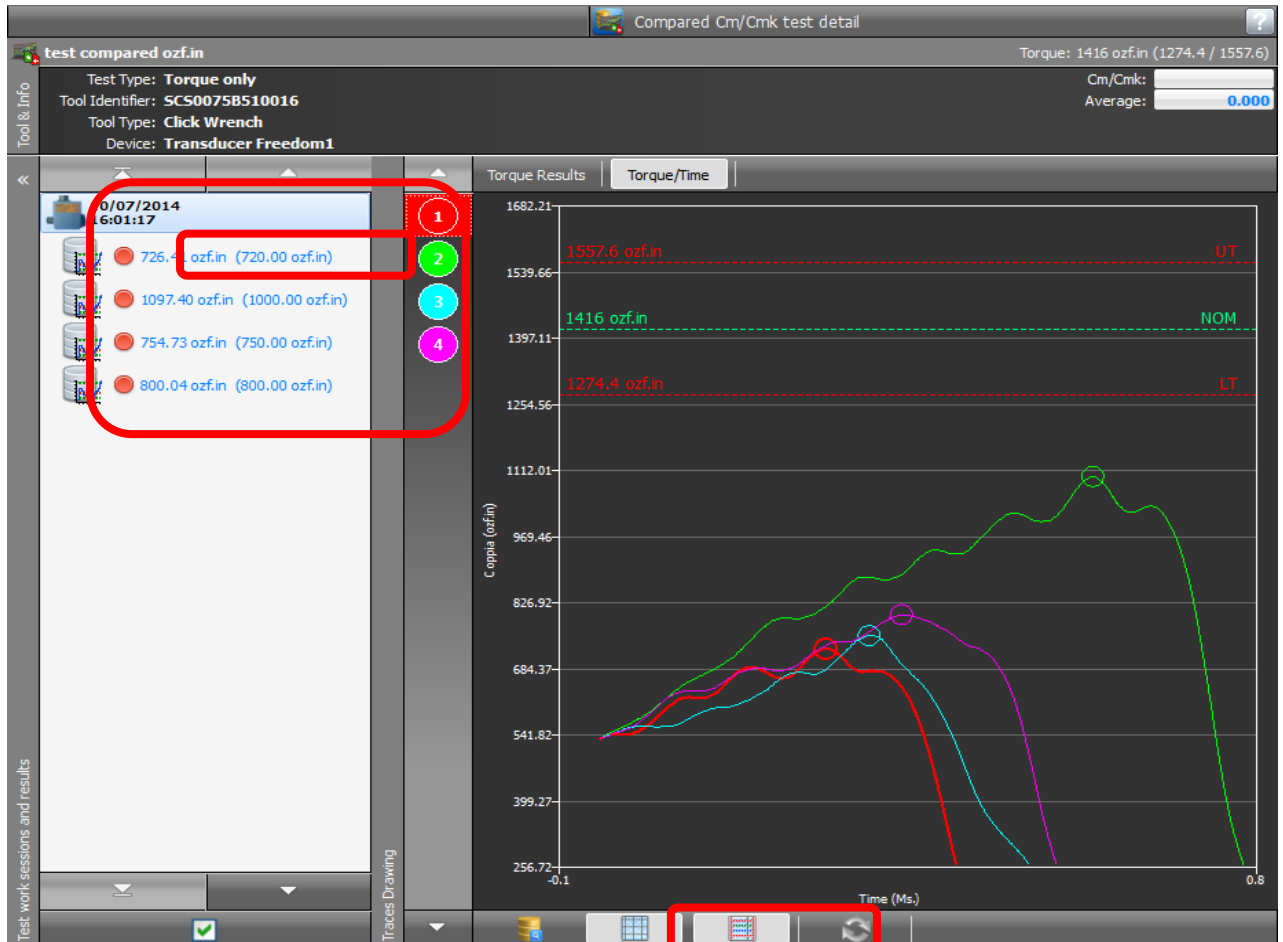
Figure 14

- o if the Data.Pro is installed in a FTY bench in which is already present a previous version of the Data.Pro is necessary to add this feature to the personal user desktop, to do it is necessary:
    - ▪ go to **Personal user desktop** screen
    - ▪ click to the favorite button (See **Figure 15**)

Figure 15

- select the Compared Cm/Cmk Test feature (See **Figure 16** and **Figure 17**).

Figure 16

Figure 17

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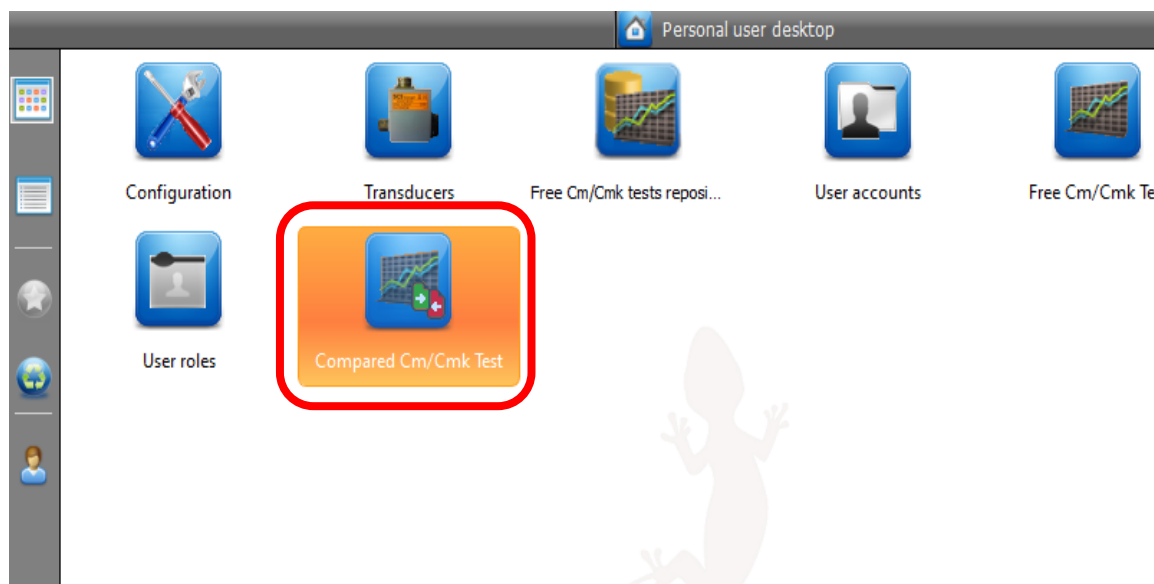
- in the Data.Pro **Configuration** functionality is now present the section **Test Compared** (See **Figure 18**). By this user interface is possible:

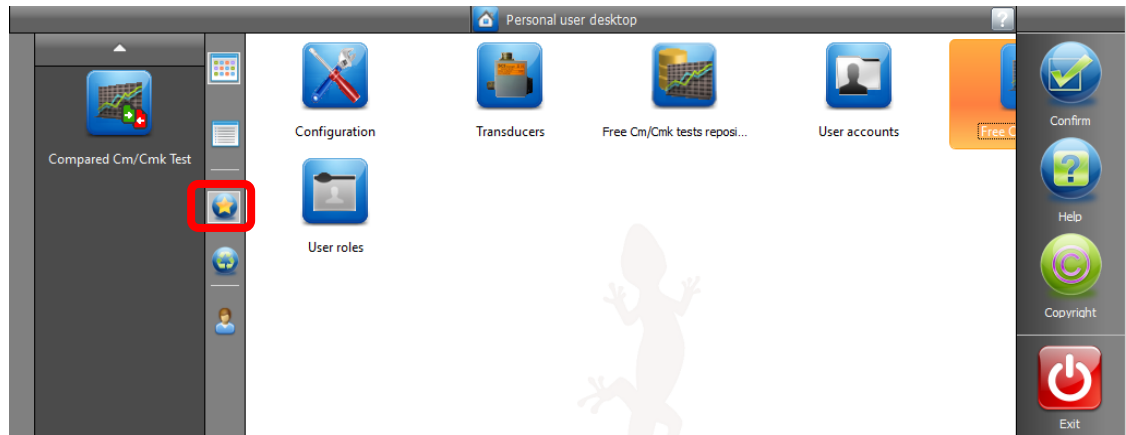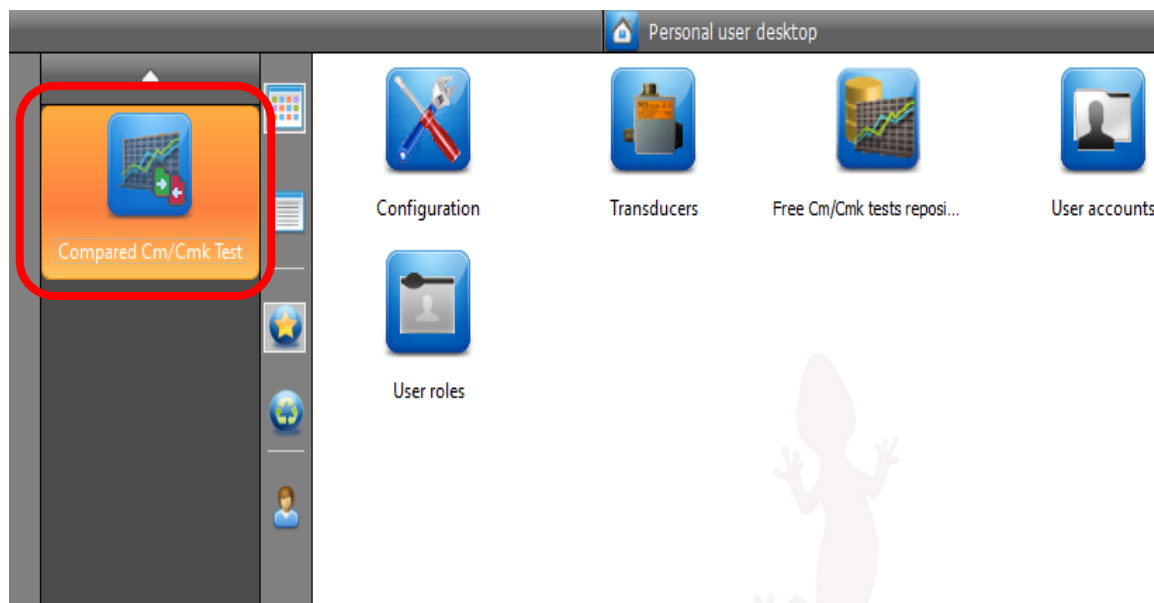   - to define the path and the name of the file that the *ToolTray* (or *SCS_ToolTray*) utility creates every time that the result of an external tool is read.

    - the waiting maximum time in milliseconds after that the Data.Pro considers the expected result as lost.

    - if the manual data entry of the external tool result is allowed by a specific user interface.
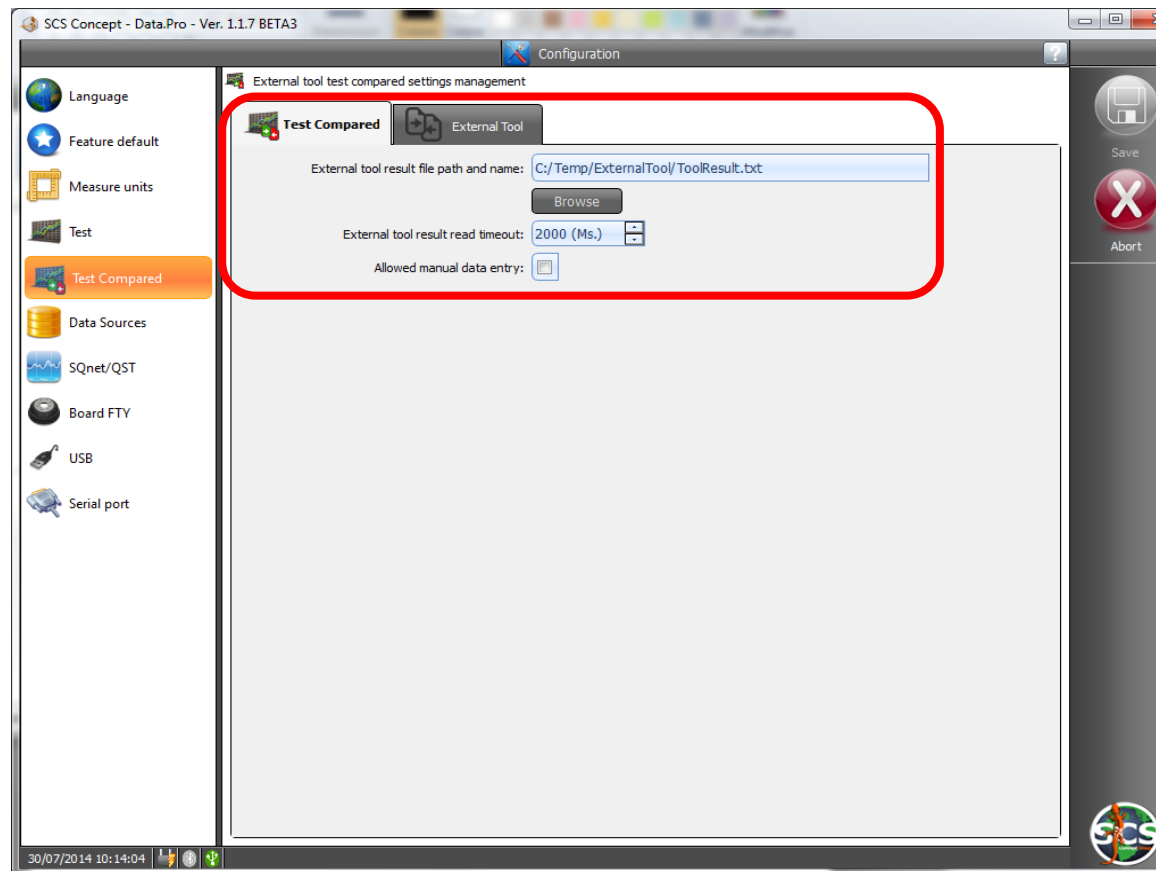
Figure 18

- the compared test is also available if the execution of the test itself is submitted from an external software (QSTorque or SQNet), in this case in the *HostToBench.ini* file is specified if the test is compared and which acquisition modality of the external tool results is expected. In the input file can be defined two different external tool results reading modalities, the others modalities specified are in any case considered as not compared test. These two external tool results reading modalities are:

    - manual data entry of the external tool results by the specific Data.Pro user interface.

- acquisition of the external tool results by the specific text files that the *ToolTray* (or *SCS_ToolTray*) utility has created. If, the *ToolTray* utility fails the reading operation of the external tool result and the expected file is not created after that the maximum timeout is occurred, the manual data entry user interface of the result is shown if the specific option is activated in the compared test settings of the Data.Pro Configuration functionality.

Troubleshooting

Following the known problems solved in this version of the Data.Pro:

- when the trace chart is zoomed, the number of the indicators in the X and Y axes remain the same. So doing is easier to consult the trace data and to calculate a range of value between two indicator (See **Figure 19** and **Figure 20**).
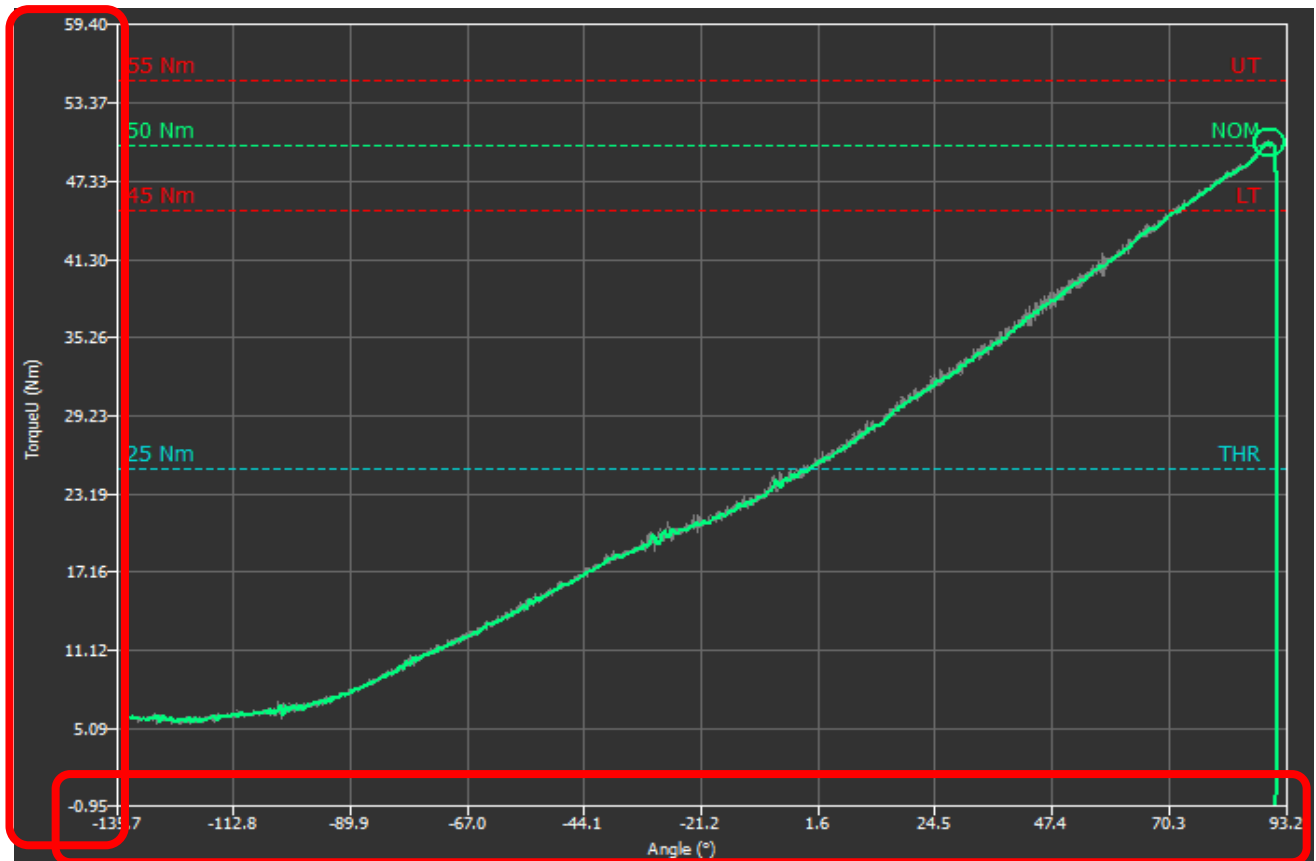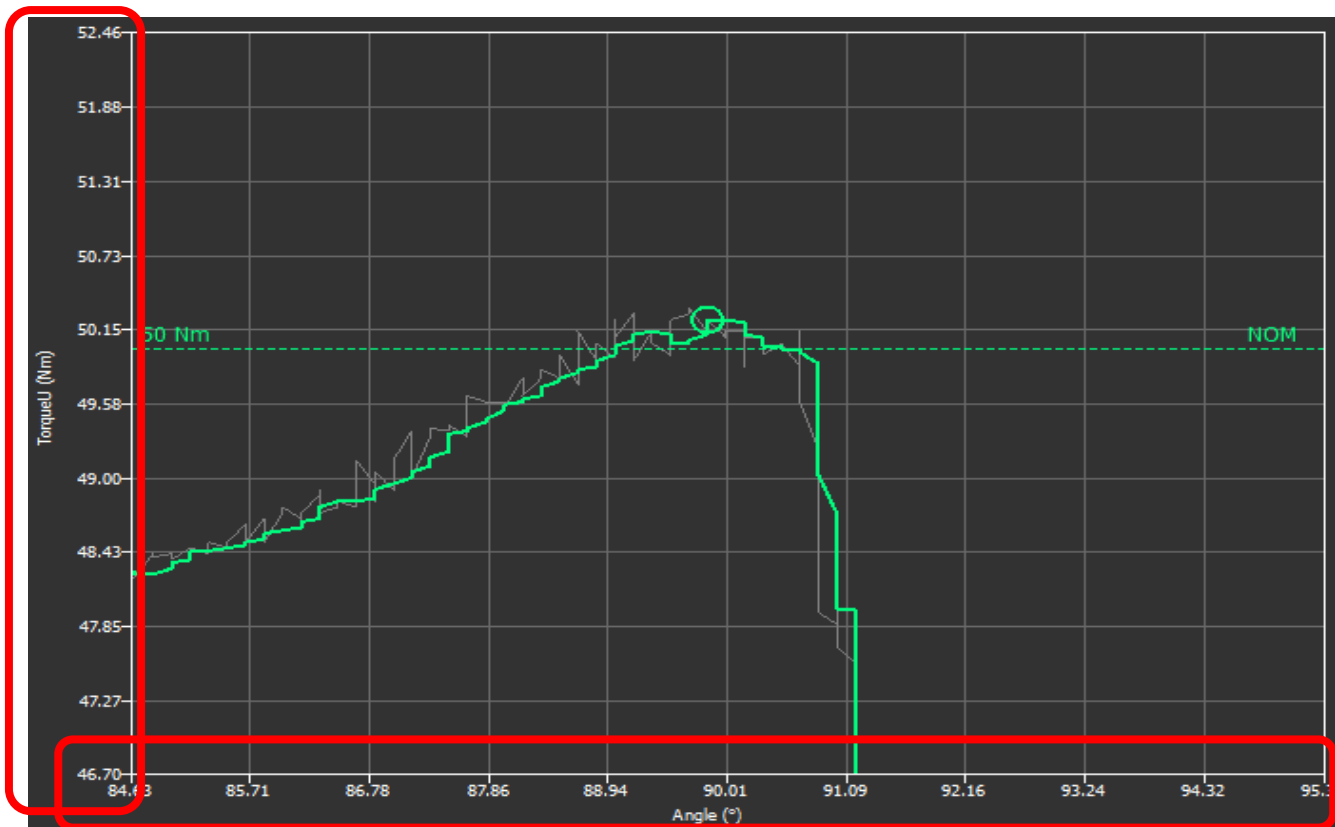

Figure 19

Figure 20

- now is easier to select by the finger touch a point in the trace chart and to highlight it in the corresponding data table. In fact the software tries to find a point of the trace near the point that the user has selected in the screen (See **Figure 21**).
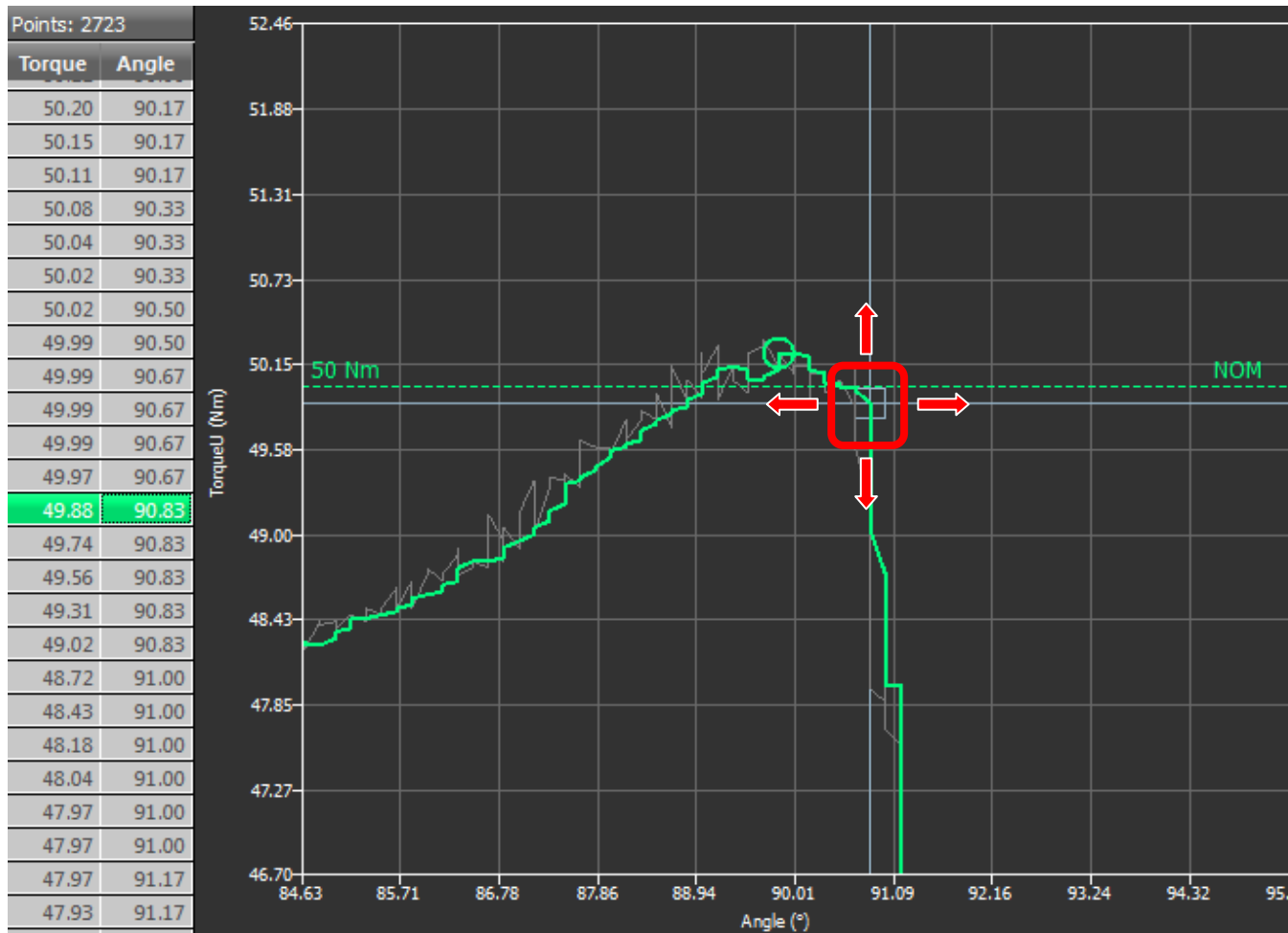
Figure 21

- the utilization of the mouse wheel on the curve chart caused an unexpected crash of the Data.Pro, now this problem should be solved.

- when, during the execution of a test, if the warming up modality was activated, there was a misalignment between the result selected and the curve chart shown. This wrong behavior was present not with the current tightening curve chart but, only when a previously stored tightening was reload in the user interface, in any case now it should be solved.

- in the Free Cm/Cmk test data entry, if the user changes the nominal torque or the nominal angle, the value of the limits and threshold (if available) are automatically recalculated in base at the coefficient percentage configured (that, as default value, is 10% but the user can customize it). So doing, it's not more possible to insert a wrong sequence values of the torque or angle data in the manual data entry of the test settings.

- in the Data.Pro test management user interface was erroneously shown as final result the maximum torque instead of the actual the torque result, now this problem should be solved but, it's mandatory, to install also in the bench at least the **3.0.8** firmware version.

- To avoid problems, when the Data.Pro is installed with a specific Windows user and is execute with another Windows user, the configurations required to communicate with the SQNet and QSTorque external software are automatically rewritten after every start of the

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Data.Pro. It also important that the Data.Pro is added at the list of the startup software of the Windows operative system, how to do it is specified in the dedicated document **DataProInstallationProcedure_Rev2.doc**, please consult it.

- Has been reintroduced the data entry user interface of the **steps number** of the **tool** (See **Figure 22**). This information (erroneously hidden) is available only if the tool chosen is a power tool. In the tests executed from an external software (SQNet or QSTorque) the default value of this setting is memorized into "*Strategy*" element of the *HostToBench.ini* file. The known values for this setting are the following:

  o 0 means not defined (in this case it is interpreted as only one step)

  o 1 means two steps

  o 2 means quick step

Figure 22

6 Known issues and limitations

Following the issues or bugs that, at the moment, are known in the Data.Pro software or FTY bench firmware:

- it's possible to execute a pulse tool to a static cell but, also if the trace is regularly drawn, the result shown is not meaningful.

- it's possible to execute a power tool to a static cell but, the tightening never terminate, and no result is returned.

- it's not possible to execute a pulse tool with a transducer Freedom1 also in the device is able to manage this type of test.

- for the moment the Data.Pro has been translated completely only in Italian and Spanish, the other languages are not still available.

- for the moment the management of the **Indicating Wrench** tool type is not still completely available, some behaviors must be still defined both in the firmware than software side.

- in the **Configuration/Test Compared** user interface exists a specific section called **External Tool** (See **Figure 23**). It contains the configuration management necessary to communicate with the *SCS_ToolTray* utility. Please, for the moment, ignore this user interface (because the *SCS_ToolTray* utility is not still available) and you make sure that the external tool communication status is set to false (it should be in any case its default value).
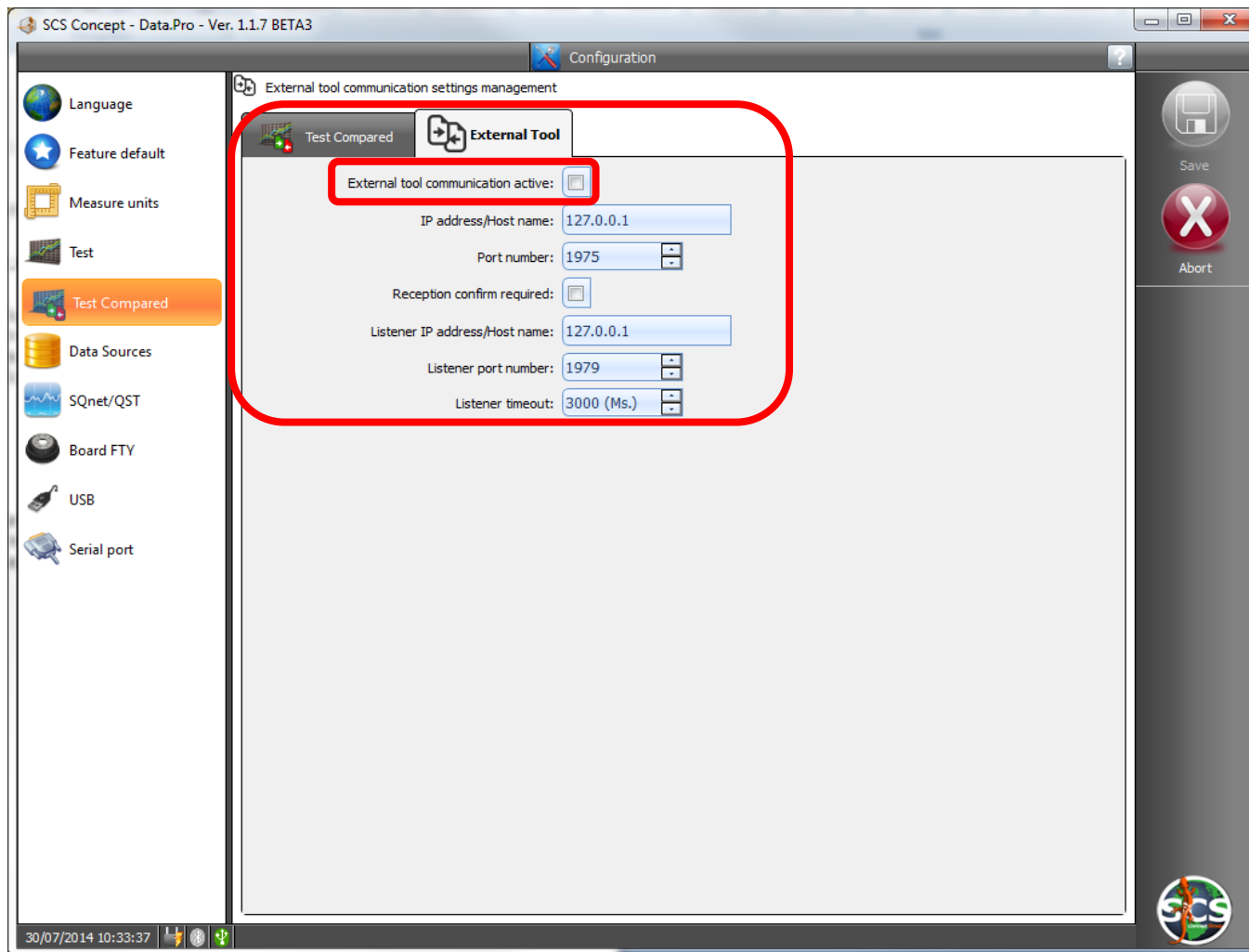
Figure 23

7 Installation guide

The installation procedure of the Data.Pro software is detailed in the document **DataProInstallationProcedure_Rev2.doc**. Instead, how to upgrade the firmware in the FTY bench, is explained in the document **FTYFirmwareUpgrade.doc**, please consult them.

MAINTENANCE

⚠️   **WARNING: Maintenance operations must be executed by *SCS Concept* trained personnel only.**

CALIBRATION: The bench brakes and static cells should be recalibrated once every year.

Contact *SCS Concept* for calibration.

 info@scsconcept.eu

REPLACEMENT OF THE BATTERIES: It is advisable to replace the batteries approximately once every two years.

OIL CHANGE: The fluid (**oil HLC ISO VG46**) in the hydraulic circuit should be replaced every 2000 hours of pump operation, corresponding to approximately 20,000 hours of operation of the bench. Generally, it should be changed once every 5 years.

OIL LEVEL: Check oil level regularly. Use only prescribed oil. Change contaminated oil.

FILTERS: Filters have to be inspected regularly (monthly). Check also the filter indicator.
Change filter if not efficient.

PIPES: Check all pipes and fittings. Change if damaged.

Hydraulic System Check Schedule			
	Check every		
	Day	Month	6 months
Oil level	X		
Oil temperature	X		
Oil condition			X
Filter indicator		X	
Noise level		X	
Pressure		X	
Flow rate			X
Rigid pipes			X
Flexible pipes and fastenings		X	
Electric system			X

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Montbéliard, le 24/07/2014   **Samuel KNORST**