

## 1 Introduction

The QC Endurance Test checks the real time capability of your QC system (PC, software, hardware) and provides you with comprehensive diagnostics information.

The main use is the statistical analysis of test duration. This is essential information when using automated lines.

It performs typical QC tests for a long time (typically >24h) and reveals the distribution of timing (duration of a test and calculation of test result) and also sporadic or systematic delays in test performance.

This approach is different from the *Performance Test Tool*, which is a tool that simply checks the reliable streaming capability of a PC and audio hardware.

Result of the *QC Endurance Test* is an HTML report with detailed information about the

- computer's memory, network activity, hard-disc activity
- pure test duration (playing test signal and capturing sensor data)
- post processing time until a verdict was calculated

This tool provides reliable data for automated line production, cycle time consideration and PC stability.

The endurance test is a stand-alone tool that requires a full QC base installation.

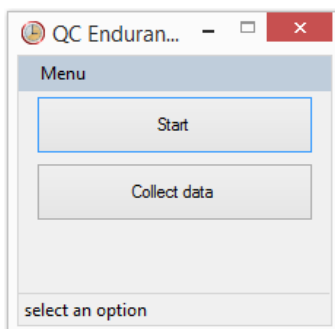
It can operate with all versions since QC4.0 on Windows XP and Windows 7,8,10. You might need administrator rights to run the program for accessing system information from the PC.

The tool can be downloaded from the Klippel web site on request. Please contact [qc-support@klippel.de](mailto:qc-support@klippel.de).

## 2 Using the Endurance Test

Copy and unzip the software package to any local folder on your hard-disc with write access.

Launch the program *QcEnduranceTest.exe*.



Press *Start* and follow the instructions of the messages (the message box may be behind the automatically opened *dB-Lab*). The tool will open *dB-Lab* with prepared tests for the endurance test. Select an operation and login as engineer. You may also use any other operation comprising the standard control task. A different database can be used as well but the location shall be in the endurance test folder parallel to the default *QC\_Endurance\_Test.kdbx*. When user defined operations are used, make sure

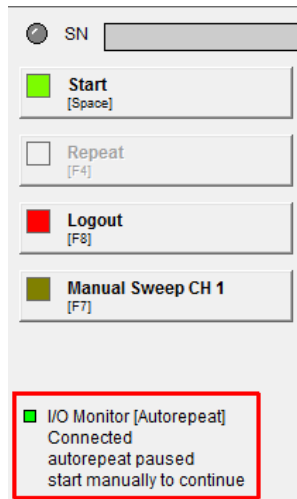
- the performance log option is switched on (QC manual: *Enable User Modes > Engineer > Property Page Tasks > Menu Button*)
- the *IO Monitor ID* is "Autorepeat" (QC manual: *User Modes > Engineer > Property Page QC Settings (off-line) > Hardware Configuration > I/O Monitor*)
- the data logging is defined reasonably. Large data may be produced. The storage of data also affects the timing as well.


Start any operation either in *Operator* or in *Engineer* mode. Limits must be defined. Any test should pass when started manually.

After Login the *IO-Monitor* application "*Autorepeat.exe*" from the folder *Data* is started automatically. The program is visible as tray icon:



The connection to the QC operation is displayed on the control panel.



If the connection is not successful (tray icon is grey ) *dB-Lab* (use icon on desktop) may need to be restarted.

Once the *Autorepeat* tool is connected to the QC application, it will automatically repeat the test simulating manual or automatic operation of the measurement. The repeat may be configured in the *Autorepeat* tool. Simply right click on the tray icon and select *Configure...* Contact Klippel Support in case of any questions ([qc-support@klippel.de](mailto:qc-support@klippel.de)).

### 3 Results

The QC system stores all relevant performance data of the QC measurement as well as the PC properties in the background.

After a user defined time (2 hours up to days, a weekend is recommended), this information can be collected and a report can be compiled. Press the button *Collect Data* in the *QC Endurance Tool*.

The tool queries for a location where to store the data. The report is opened in the default web browser and the specified location is opened in an explorer window.

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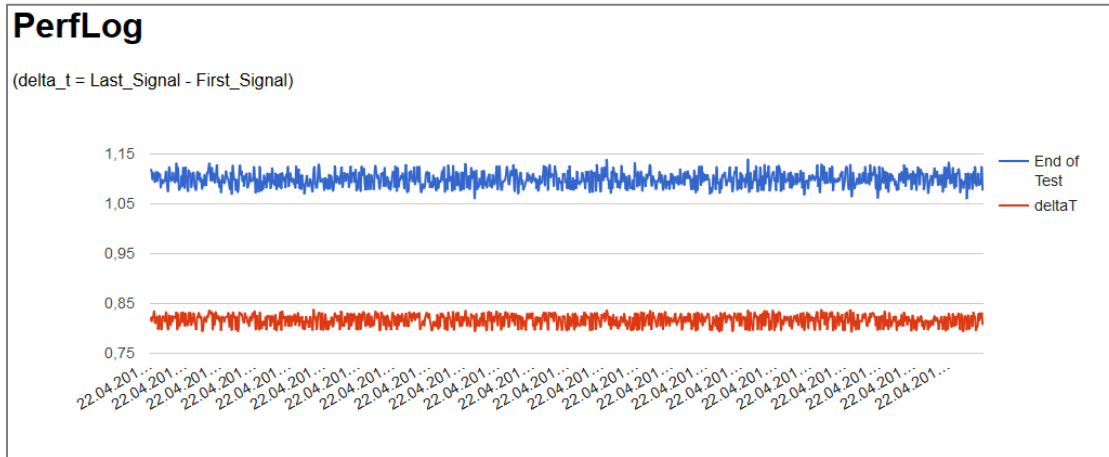
**Note:** For creating performance charts in the report, an internet connection is required. This can be also done on a different computer than the Test-PC.

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Example:

A *QC Endurance Test* report is stored as "QC Endurance Example Report.pdf" in the attached software package.

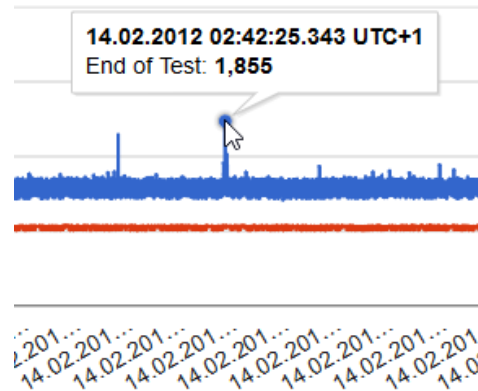
The most interesting chart is the bottom chart analyzing the time performance of the measurements:



The red curve “*deltaT*” displays the distribution of the pure measurement time. During this time the stimulus is played back and the response is captured. The DUT shall not be moved within this time.

The blue curve “*End of Test*” shows the end of the complete test including the analysis and result calculation, storage of log data and preparation of the next measurement.

If peaks occur in this chart, the time can be tracked using the mouse and the PC properties can be checked for synchronous peaks. See *TN04 Identification, Repair of drop-out problems* for more details.



#### 4 References

Specification	C3_QC_Set H4_QC_Production_Analyzer
Application Notes	AN45 Optimal QC setup for fixed measurement time
Tec Notes	TN04 Identification, Repair of drop-out problems
Other Resources	Software Package “QC Endurance Test.zip”

Find explanations for symbols at:

<http://www.klippel.de/know-how/literature.html>

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