The optimiSE
Test Management Suite

*Our **Test Management Suite** offers a unique combination of automated ("real-time") production control, desk-top analysis as well as customised tools. All of them are specially designed for the development, analysis and optimisation of test programs and test hardware*

*The **Test Management Suite** replies to most questions concerning test floor activities and, in doing so, it delivers multiple benefits for the Test Program Development, Test Engineering and Quality Management*

- ***A Data Base tailored to Test Engineering Needs - the TestBase***
  *The **TestBase's** automated data collection scans all device characteristics and test results into a data base (PostGreSQL or standard company DB, e.g., MSSQL/Oracle/IBM). The **TestBase Browser** provides full device and test data traceability for actual or long-term analyses.*

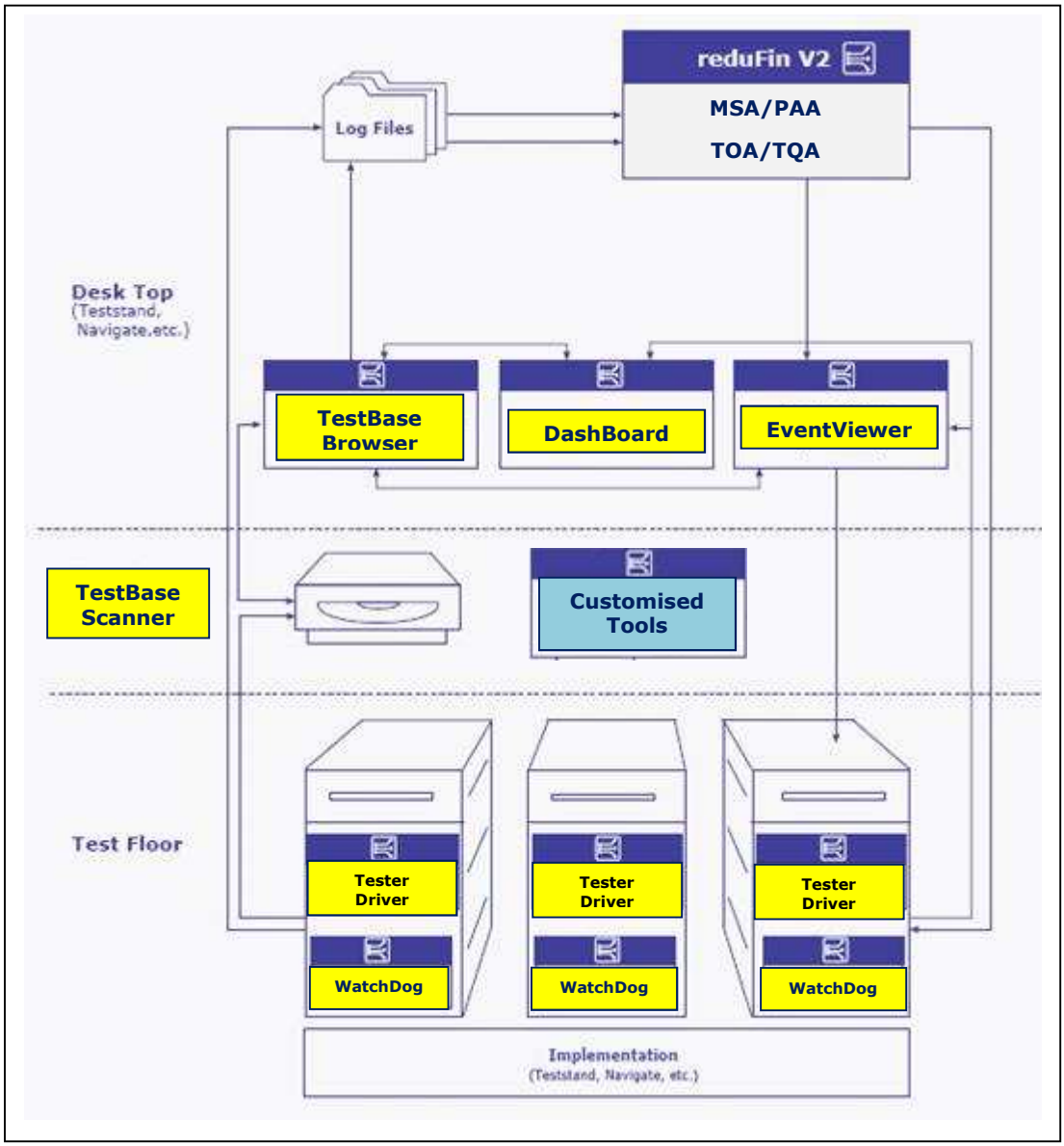
- ***A smart Production Control Unit - the Tester DashBoard***
  *The **DashBoard** permits the production/quality/test executives to view actual information concerning the product quality (First Pass Yield, # of Retests) as well as the usage of test machines, with all information in real-time or for long-term analyses. It also serves as an automated product and tester controller with threshold violation warnings in real-time (e.g. First Pass Yield). Moreover, it helps optimising the tester usage as handling times, 'left-over' tester capacities, etc. are indicated.*

- ***An all-in-one Tool for Test Analysis - the reduFin Suite***
  ***reduFin** is able to analyse data logs in any format or load data from the **TestBase**. With its four mutually independent modules, **reduFin** transforms test data into most detailed knowledge and reporting about*

  - ***GR&R (all tests in one run!)***
  - ***Part Average Analysis***
  - ***Test Program and Hardware Qualification***
  - ***Test Time Reduction for Inline Test***

Need more information? Please see www.optimise.de

*The **TMS** Scheme*

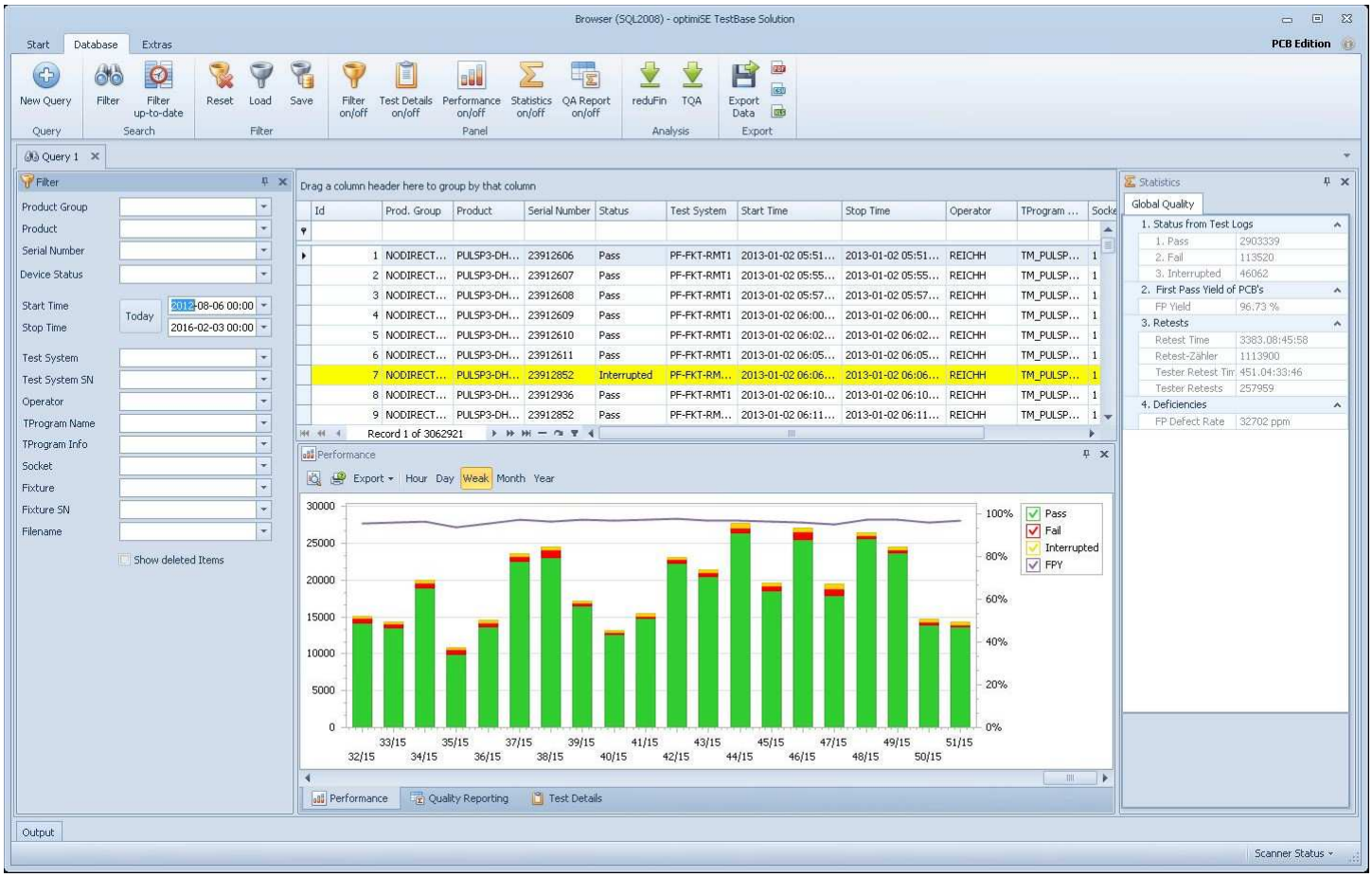


Yellow = > Automated tools operating mainly in background

The following pages provide a more detailed look at our product range!

The ***TestBase***

- *Automatic test report logging with the Windows Service **TestBase Scanner** – any standard or proprietary format is accepted.*
- *Data pool for part traceability and test analysis by the **DashBoard** and **reduFin**.*
- *To be used as "desktop" DB on PostGreSQL-frame or embedded into the local company DB structure (MS, IBM, Oracle, etc.)*
- *Test-Pareto Analyses are executed directly in the **Browser**. For ‚in-depth' analyses **reduFin** can be started and loaded with the corresponding data from the **Browser**.*
- ***TestBase** combines the advantages of a standardised database (e.g. MS SQL Server Management) with an optimised database design, which has been configured for highest efficiency in the display of PC Band test properties*



The example shows a database with app. 3 million entries at a double-digit GB size.

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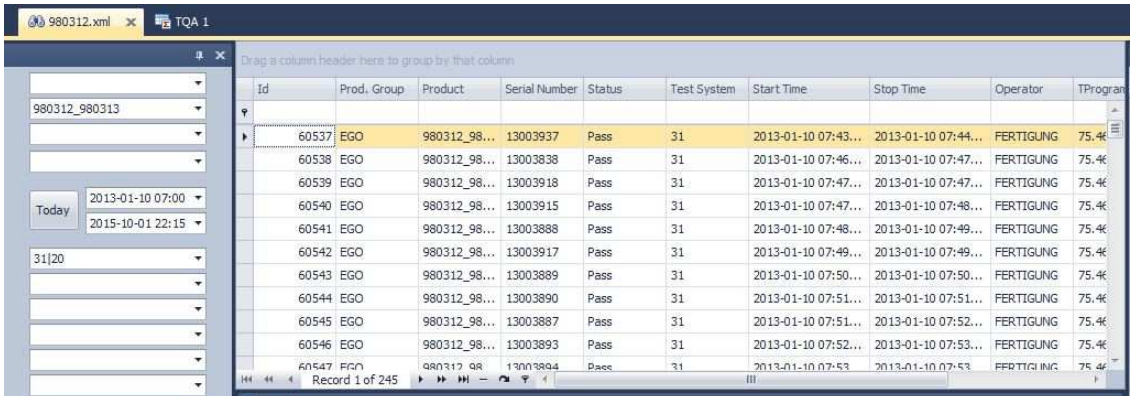
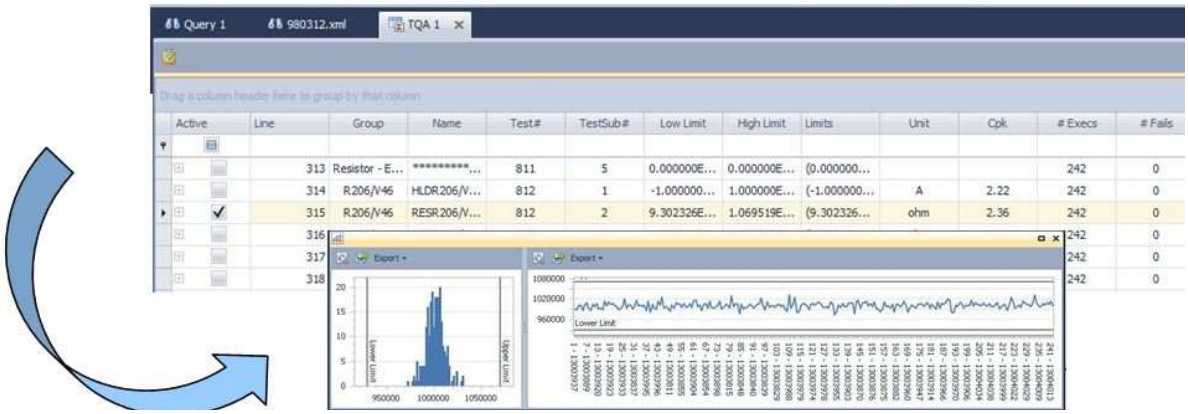
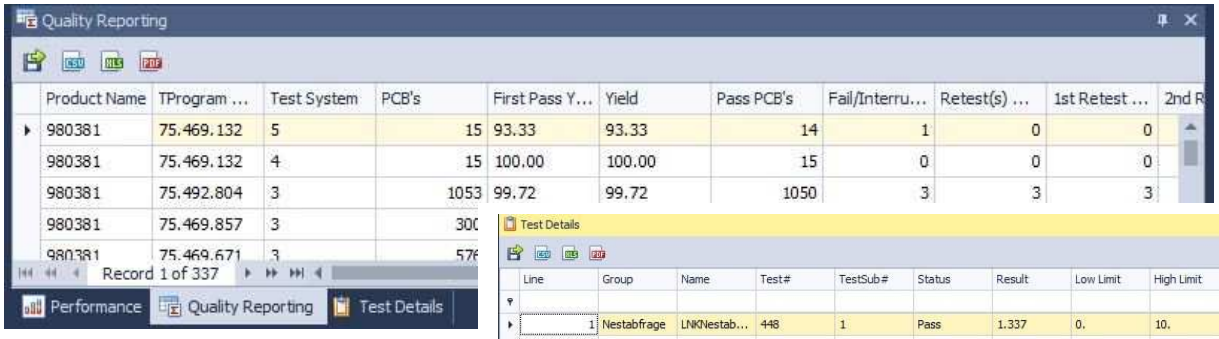
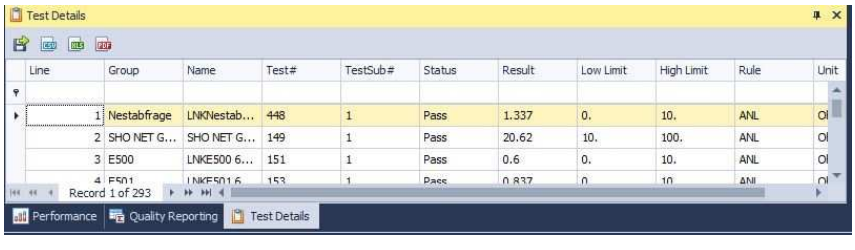
- *The **Browser** comprises **Statistics LITE,** i.e., in addition to the **reduFin** link there is a Cpk/Fail-Pareto, plus graphical representations and optional PDF-Reporting directly in the **Browser**:*





- *Further PCB and test analyses:*





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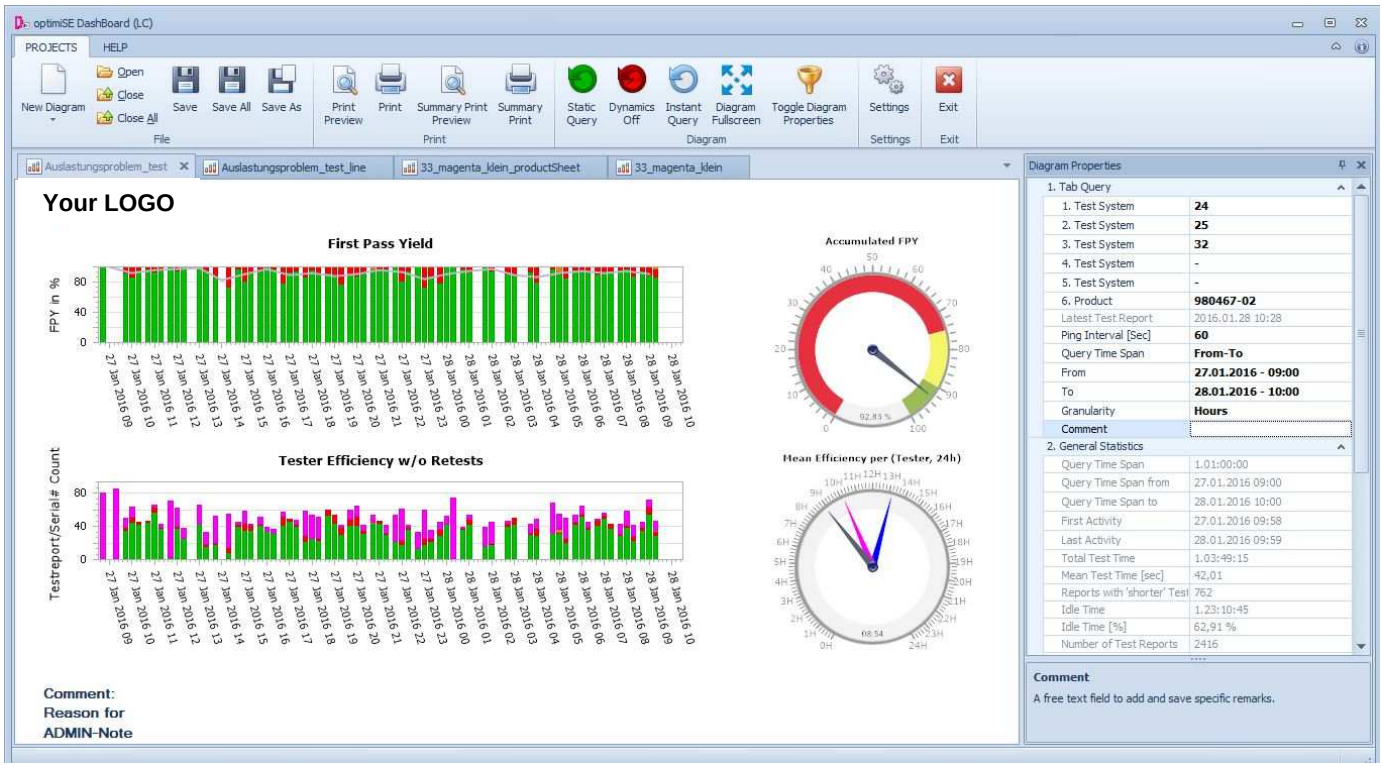
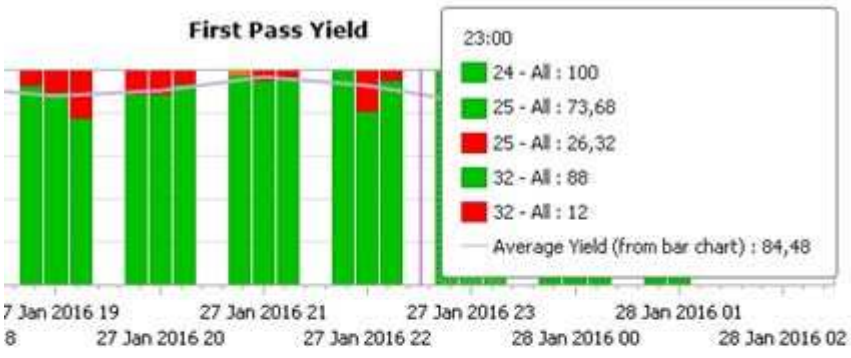
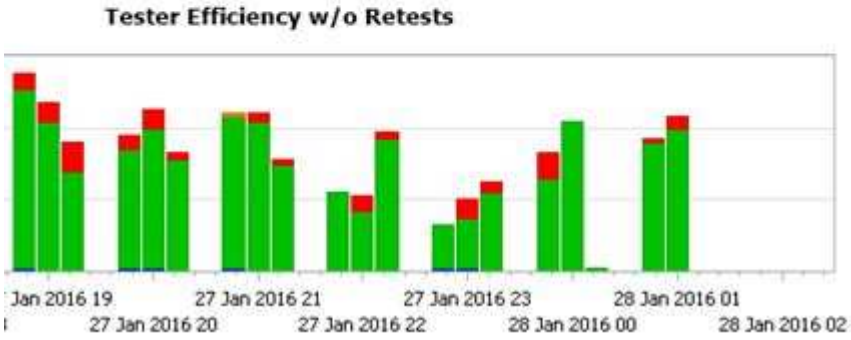
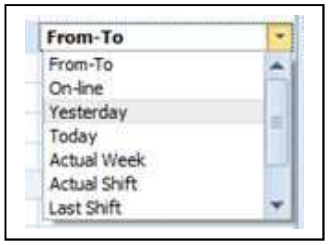
Das **Tester DashBoard**



*Various granularities in time, views and fixed, resp. moving time intervals to display in great detail FPY and Tester Efficiency on **independent** work sheets.*







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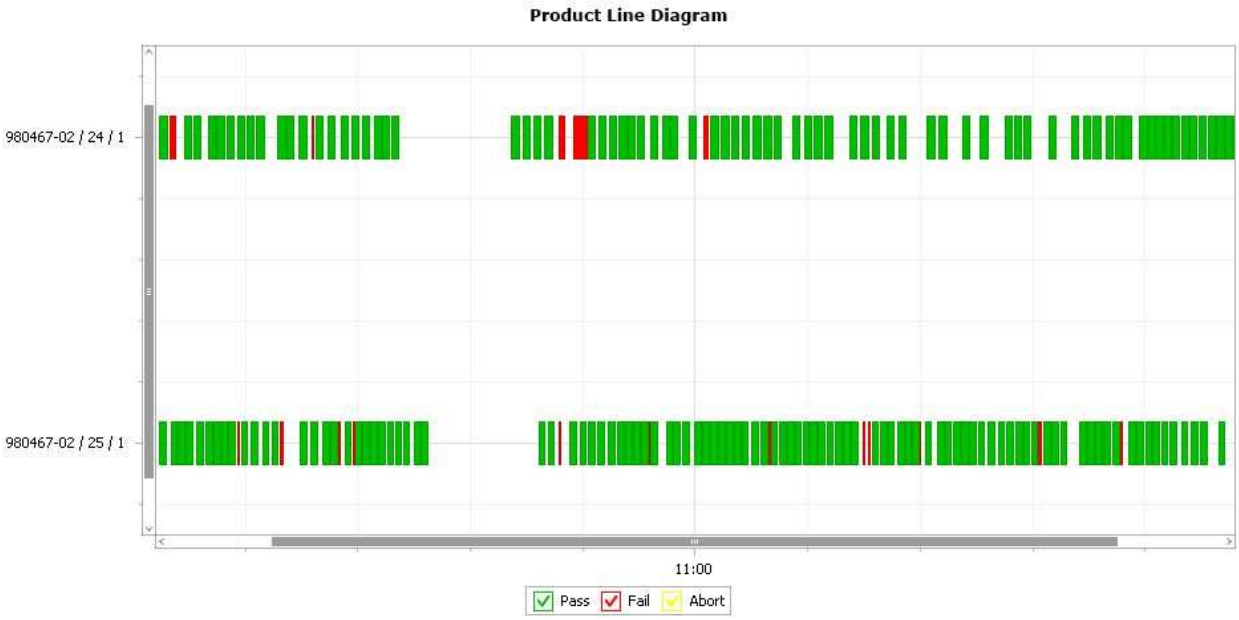
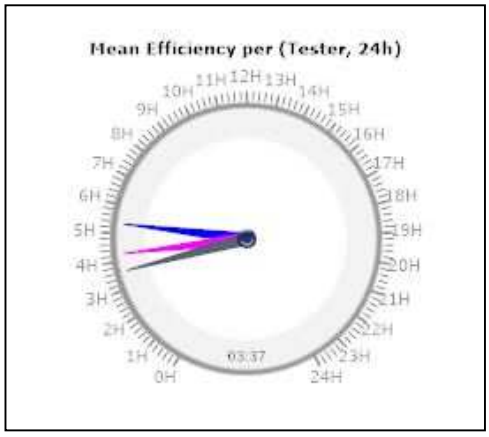
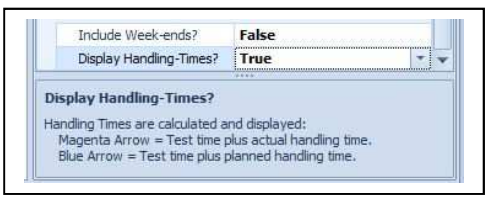
The ‚Product Line Sheet' displays the actual sequence of PCB passing through the tester(s) with the thickness of the bars corresponding to the individual test times:



Detailed statistics describes the devices under test:

Diagram Properties	
2. General Statistics	
Query Time Span	09:00:00
Query Time Span from	27.01.2016 17:00
Query Time Span to	28.01.2016 02:00
First Activity	27.01.2016 16:59
Last Activity	28.01.2016 01:58
Total Test Time	10:51:54
Mean Test Time [sec]	42,38
Reports with 'shorter' Test	113
Idle Time	16:08:06
Idle Time [%]	59,76 %
Number of Test Reports	937
Number of Devices under	833
3. Tester-Individual	
First Pass Yield per Tester	90,27%, 92,72%, 92,69%, ...
Serial# with First Pass	269, 293, 203, 0, 0
Serial# with 'Last Pass'	295, 313, 213, 0, 0
Serial# with only 'Pass'	269, 293, 203, 0, 0
Serial# with only 'Fail/Abo	3, 3, 6, 0, 0
Serial# with ReTests	30, 25, 14, 0, 0
4. Tester-Combined	
Accumulated FPY	91,84%
'Pass' Serial# over all Test	765
'Fail/Abort' Serial# over all	12
Retest Serial# over all Tes	69
5. Selected Component	
Include Week-ends?	**False**





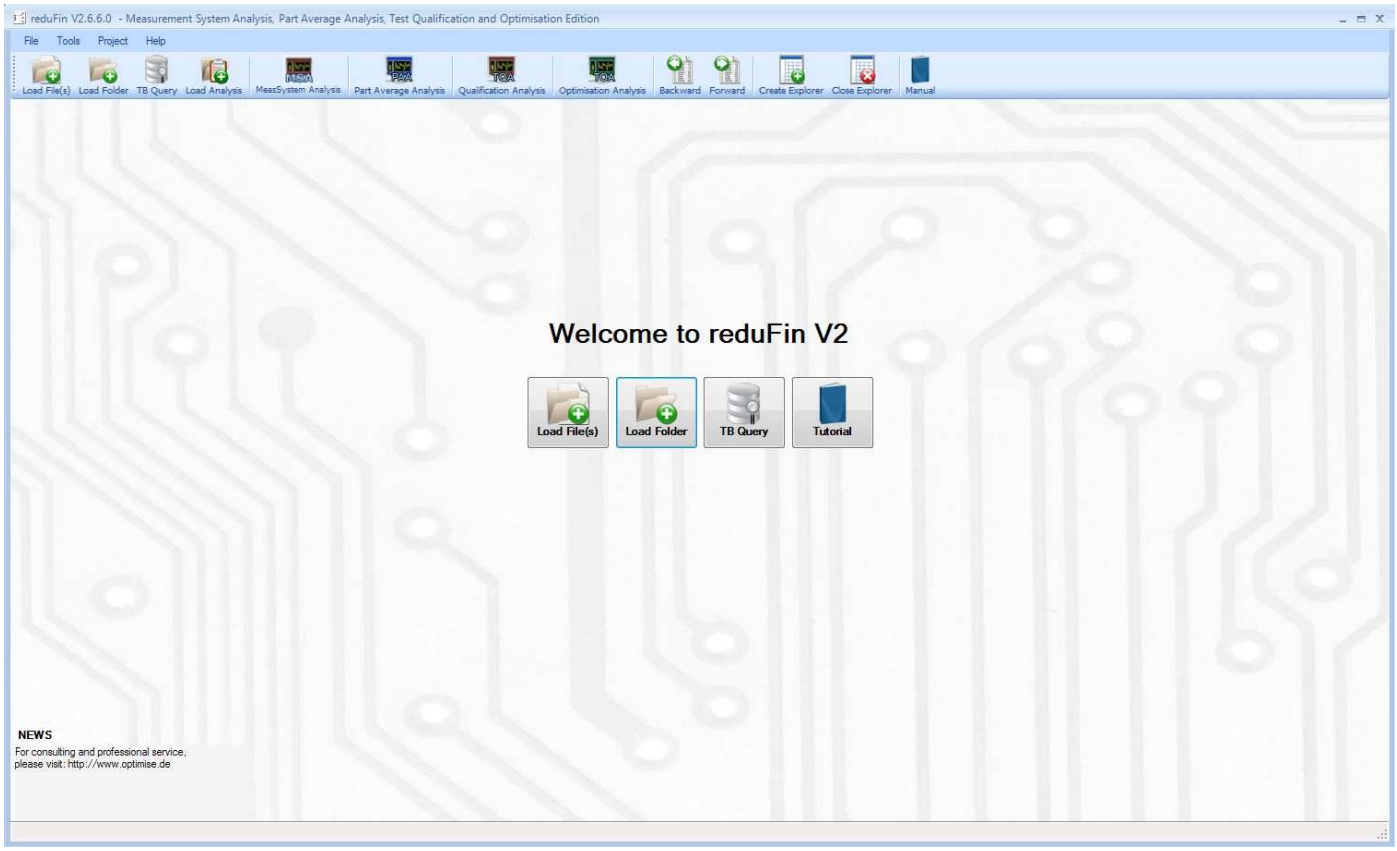
- *Actual Test Times*
- *Actual (Test Times + HandlingTimes)*
- *Actual (Test Times + planned, i.e., predefined HandlingTimes)*

are displayed!

*The **reduFin Suite™** –*

Best suited for GR&R, Part Average Analysis, Qualification and Optimisation of testing of mounted printed circuit boards

***reduFin** offers four, mutually independent modules:*



Measurement System Analysis

- *Repeatability*
- *Reproducibility*
- *Detailed Reporting*

for all tests with a few clicks

Part Average Analysis

- *Local quality outliers*
- *Floating Cpk's*

Test Qualification

- *Properties of single tests*
- *Cpk simulations*
- *Comparison between sockets, testers, lots*
- *Graphical representation of tests*

Test Optimisation

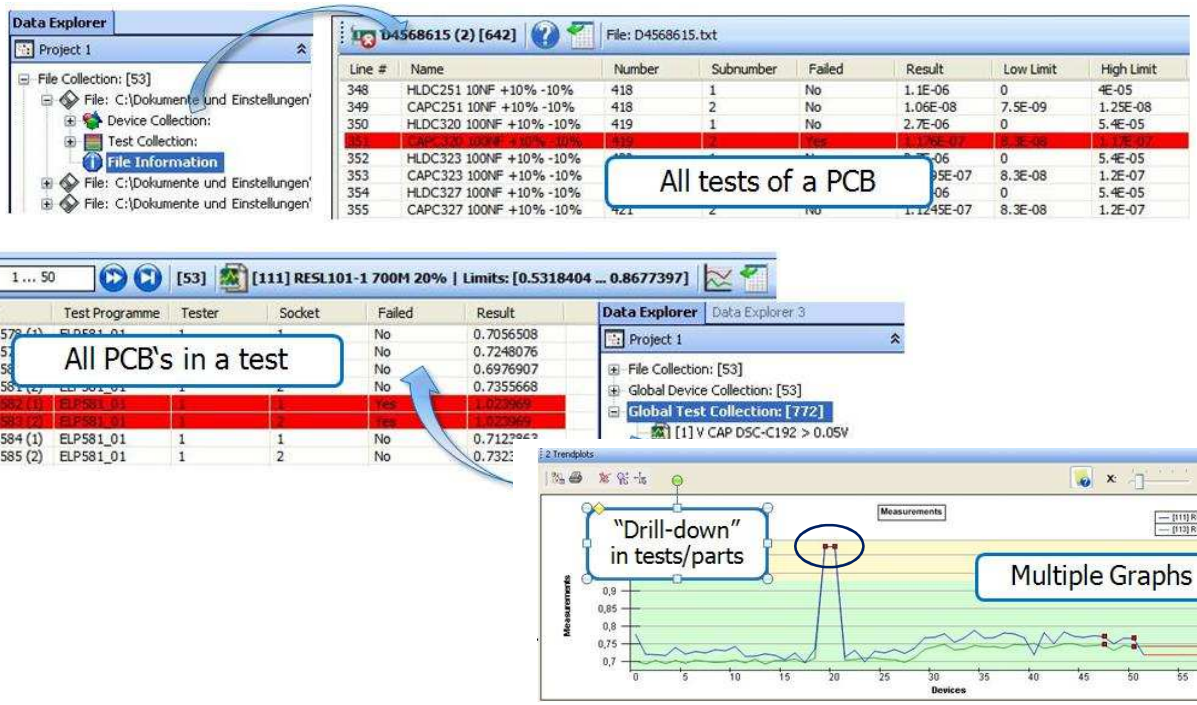
- *Test correlations, escape risks*
- *Information content of tests*
- *Test coverage overlap*
- *Test time overhead due to redundancy*

*Test logs can be loaded directly for any data formats or forwarded into **reduFin** from the **TestBase.***

Need more information? Please see www.optimise.de

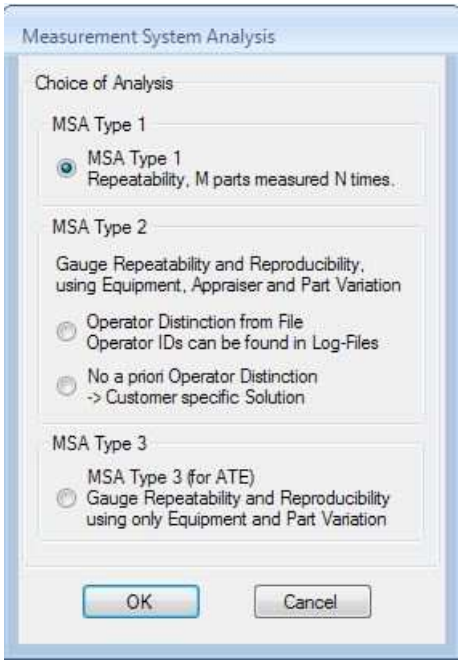
Monitoring

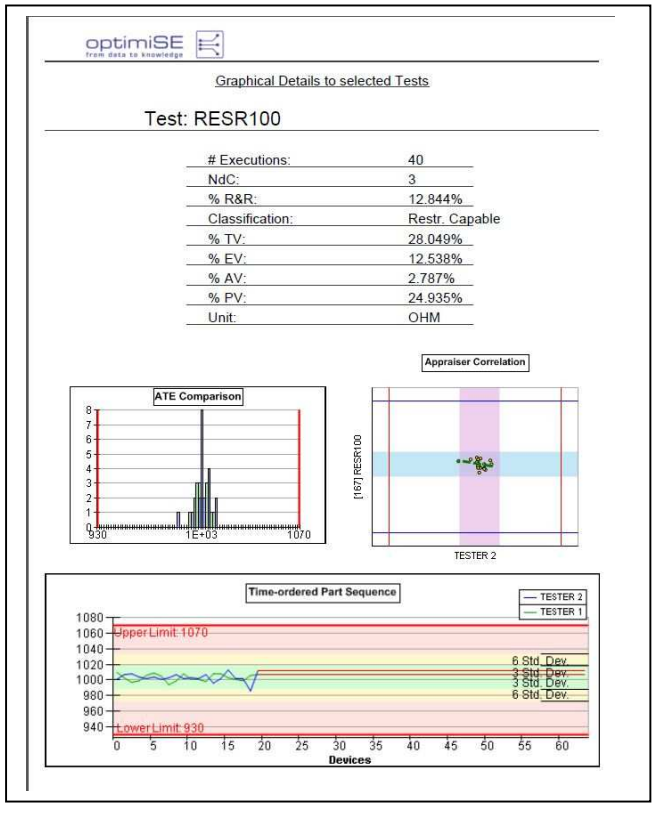
- *Details about parts and tests are only a few clicks away in the **Data Explorer***

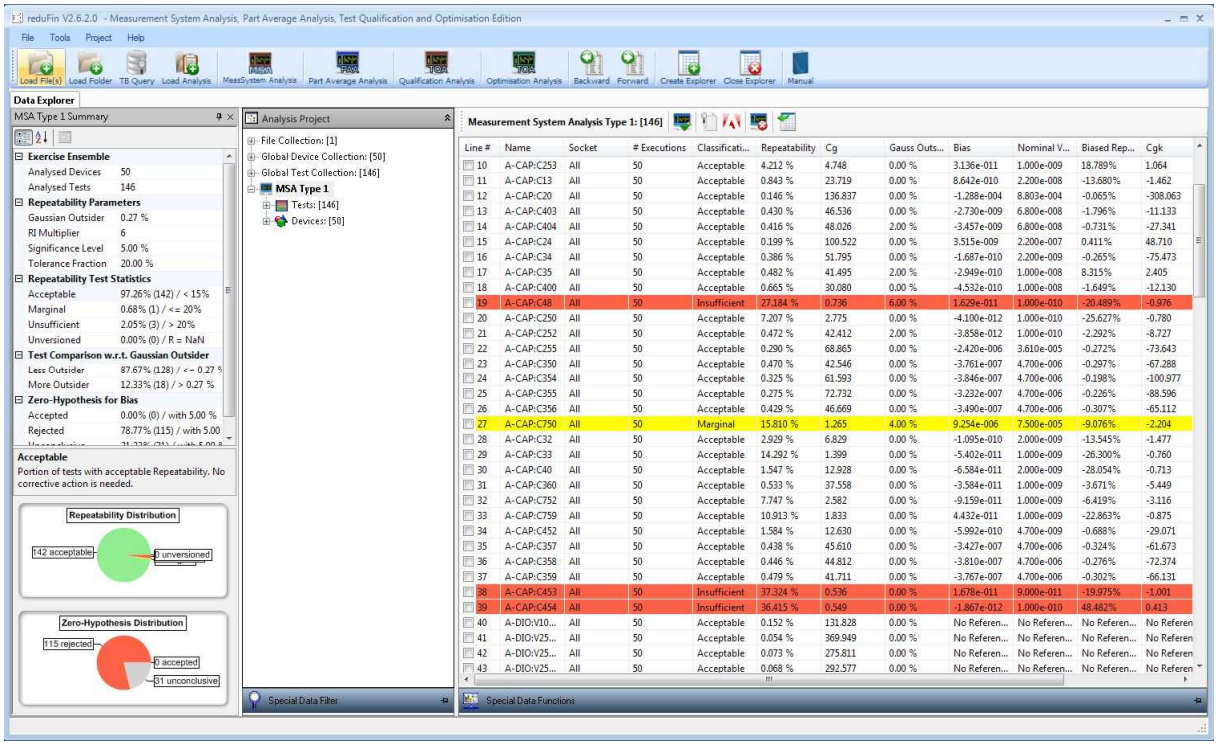


GR&R

- *A GR&R Analysis with comprehensive reporting for all tests in the test programme at a few clicks*

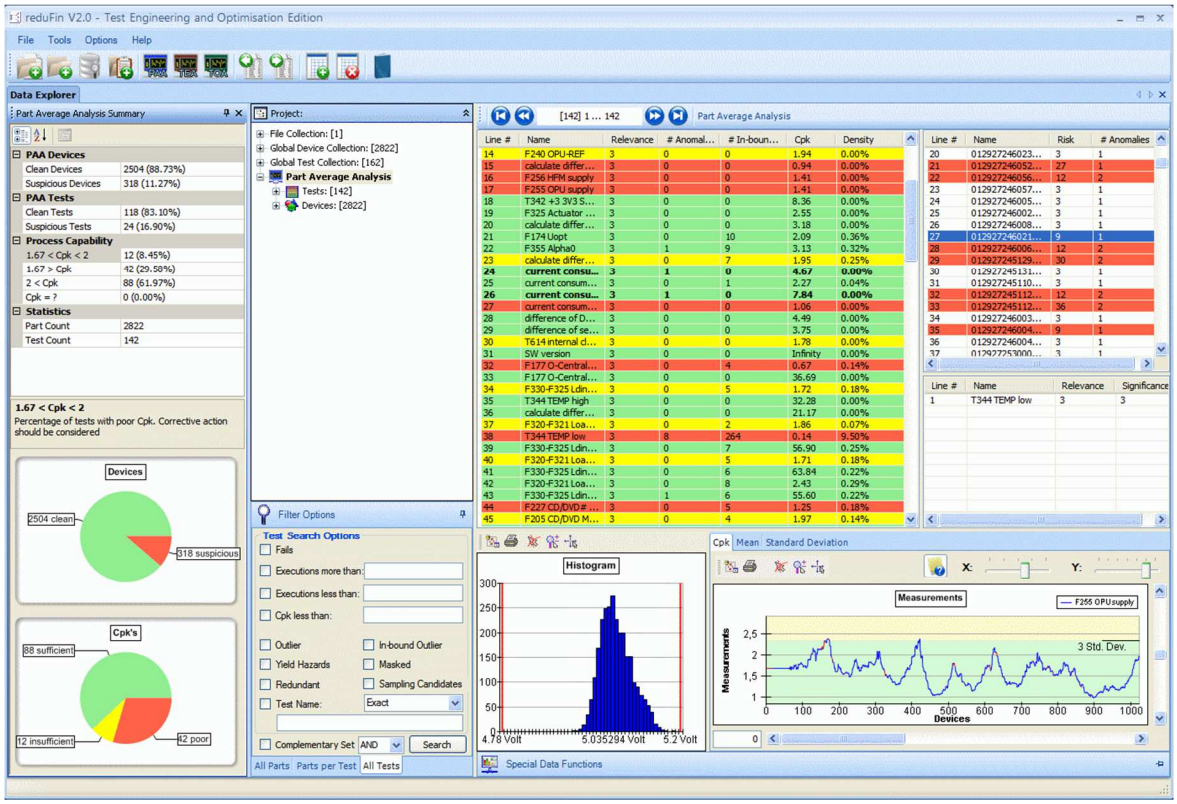






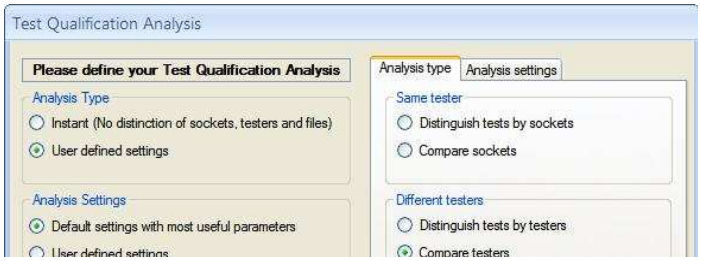
Part Average Analysis

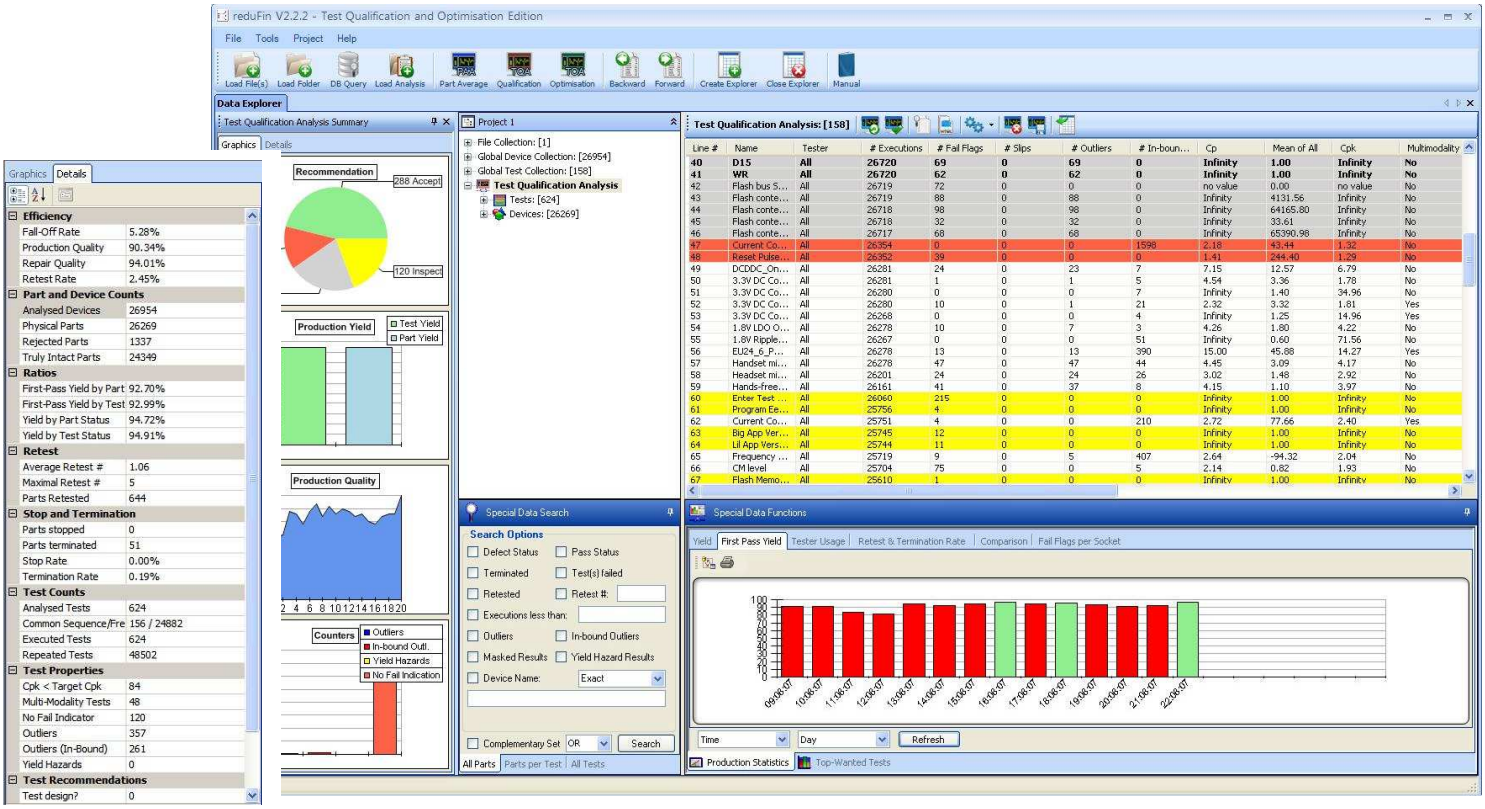
- *A statistical method for latent defect diagnosis and avoidance*

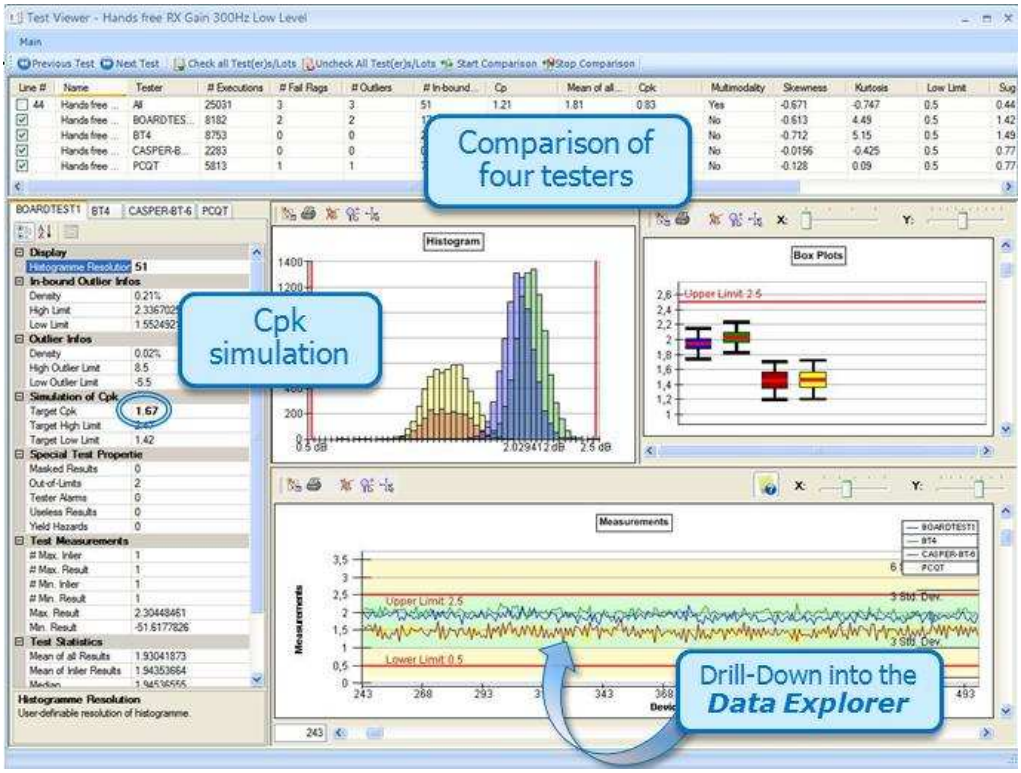


Qualification

- ***Qualification Analysis*** *shows "Everything" for single tests at a few mouse clicks*





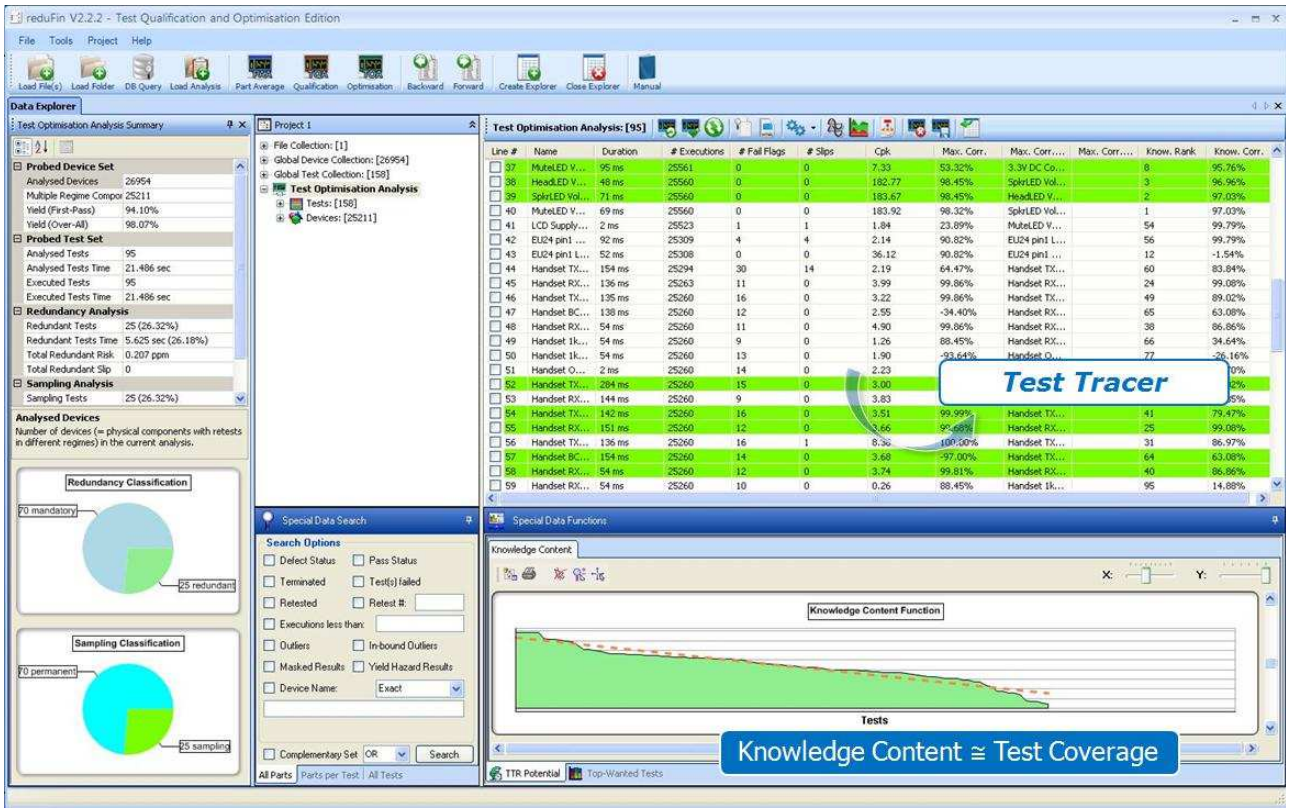


*The **Test Viewer** provides a complete view on every test*

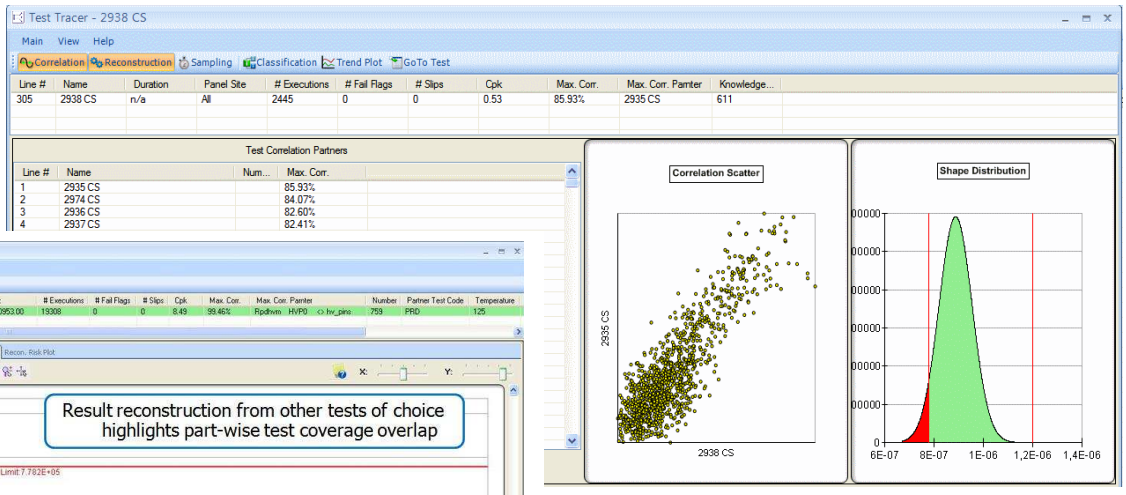
Need more information? Please see www.optimise.de

Optimisation

Optimisation *depicts the interactions between tests. It goes way beyond any standard analysis software and determines knowledge content for every test. That reflects the test's contribution to the total test coverage.*



Optimisation *estimates the risk of leaving out tests, so the expert can decide not to sample tests with reasonable probability of detecting defective parts.*



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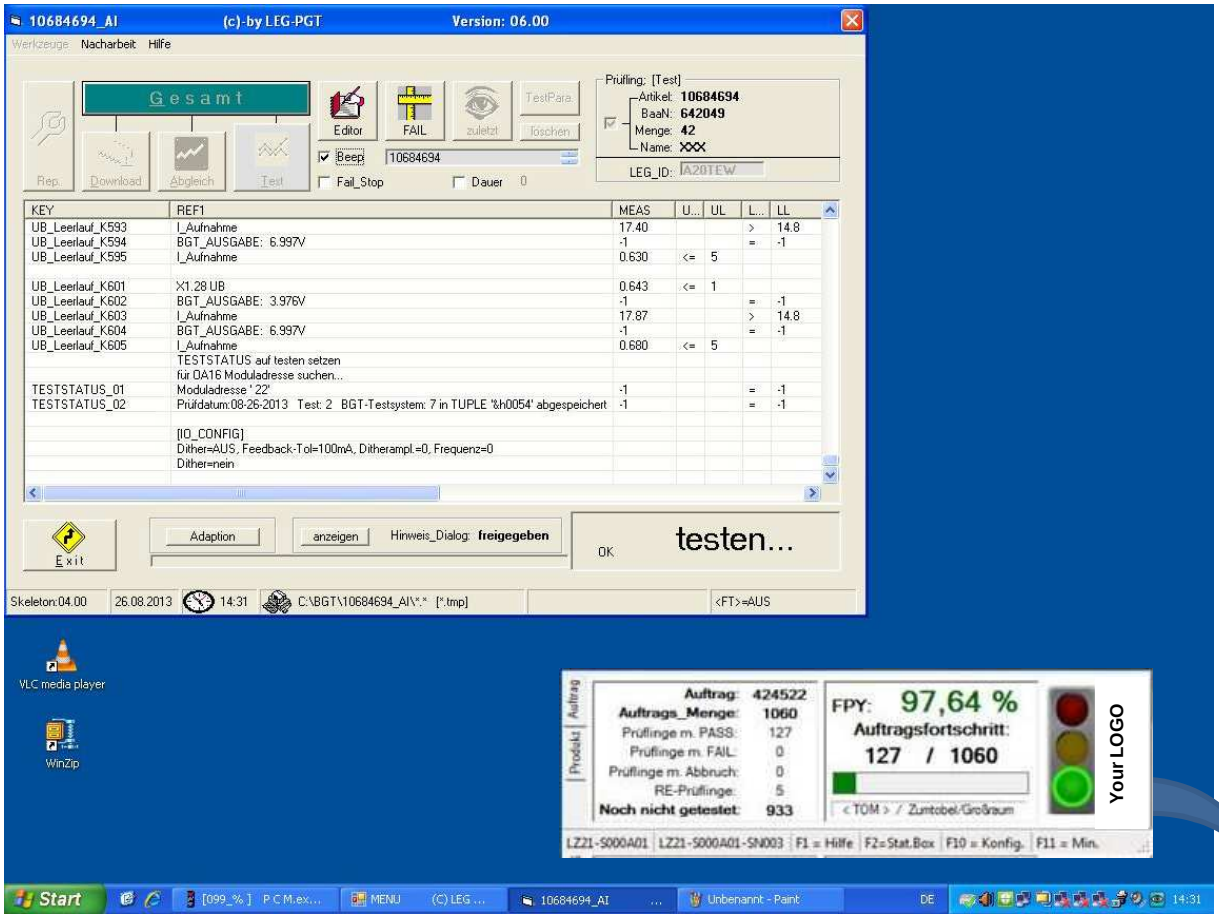
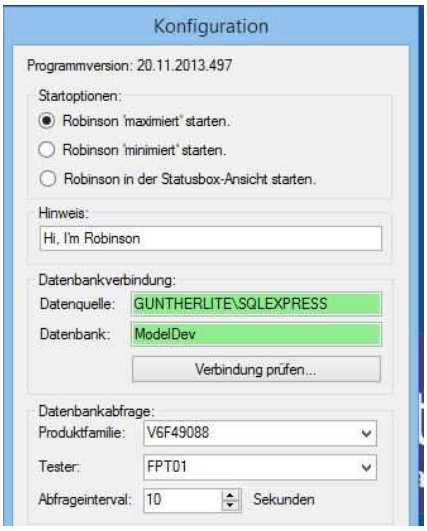
Customised Tools – Two Examples

- *Automated testing activity and quality control w.r.t. to order volume for manual assembly on test islands*



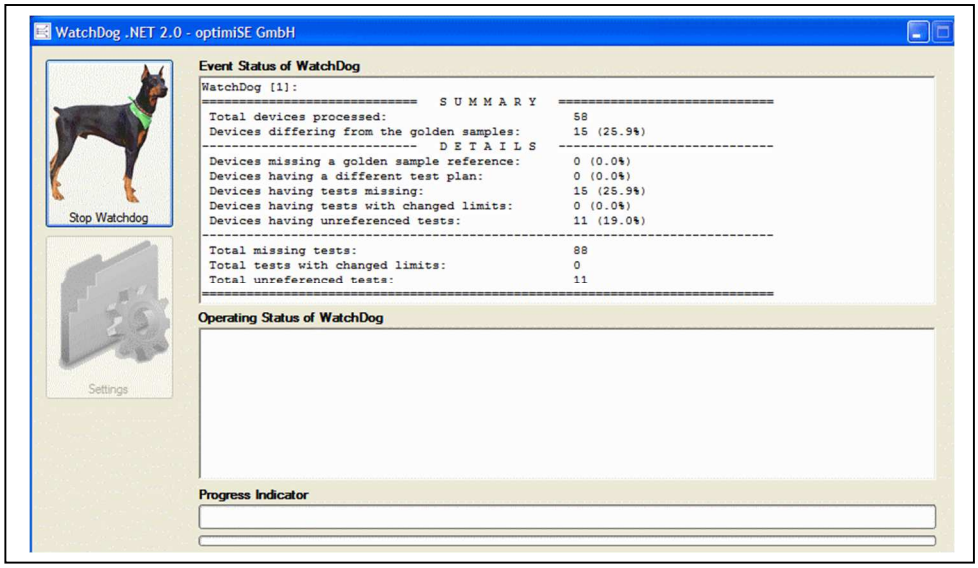
Tester GUI



- *Periodical data base query w.r.t. order# and test island*
- *Audio-visual quality and progress info*

The ***Test Floor Monitor***

*Tester- or server based, the **WatchDog** automatically monitors the correct execution of test programmes and logs parameters for production control. Deviations are reported into a data base.*



*The **EventViewer** evaluates and administrates event patterns (and will be extended by production control parameters and statistics).*