



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.

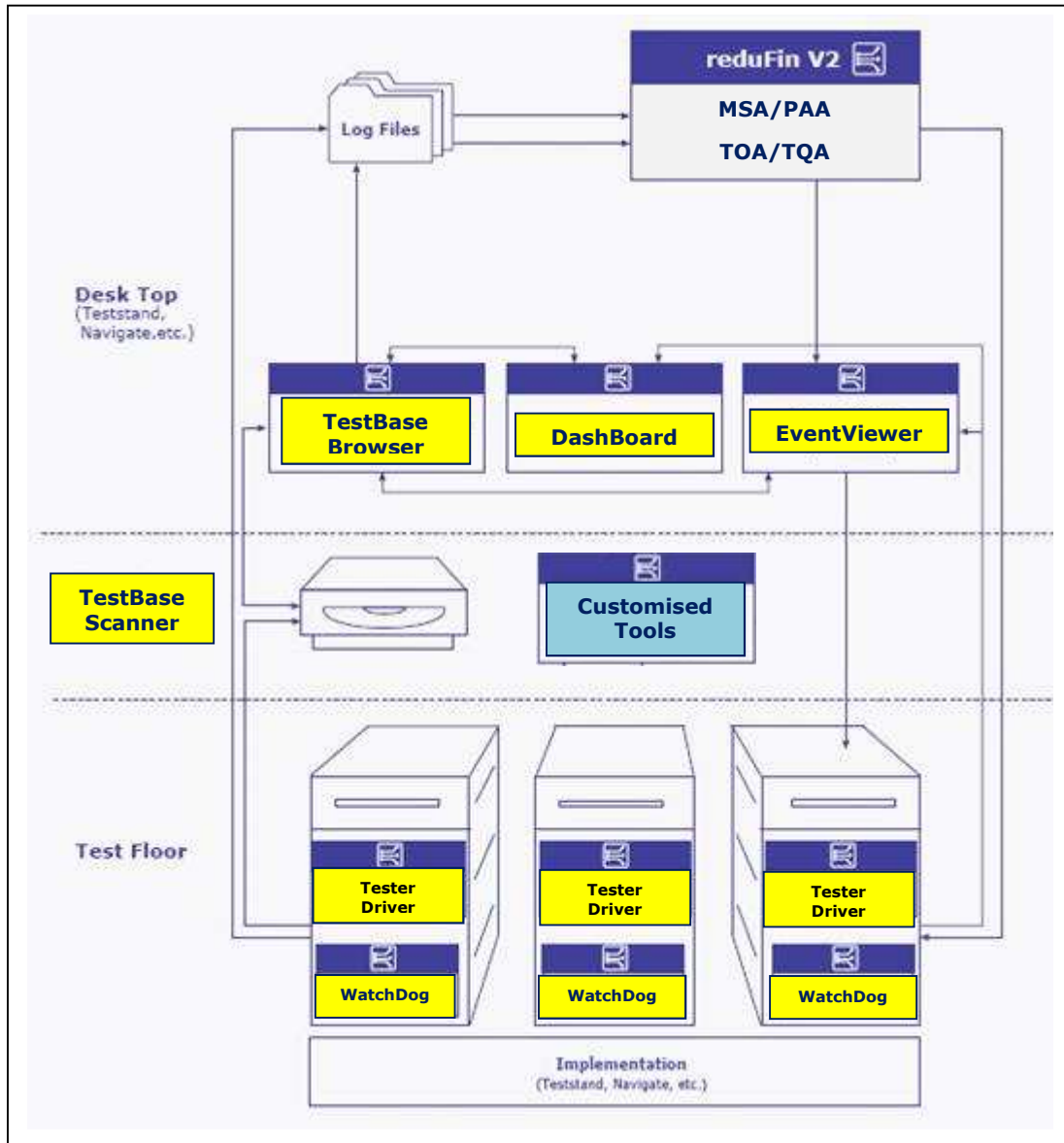
- **An all-in-one Tool for Test Analysis - the reduFin Suite**

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**



The TMS Scheme



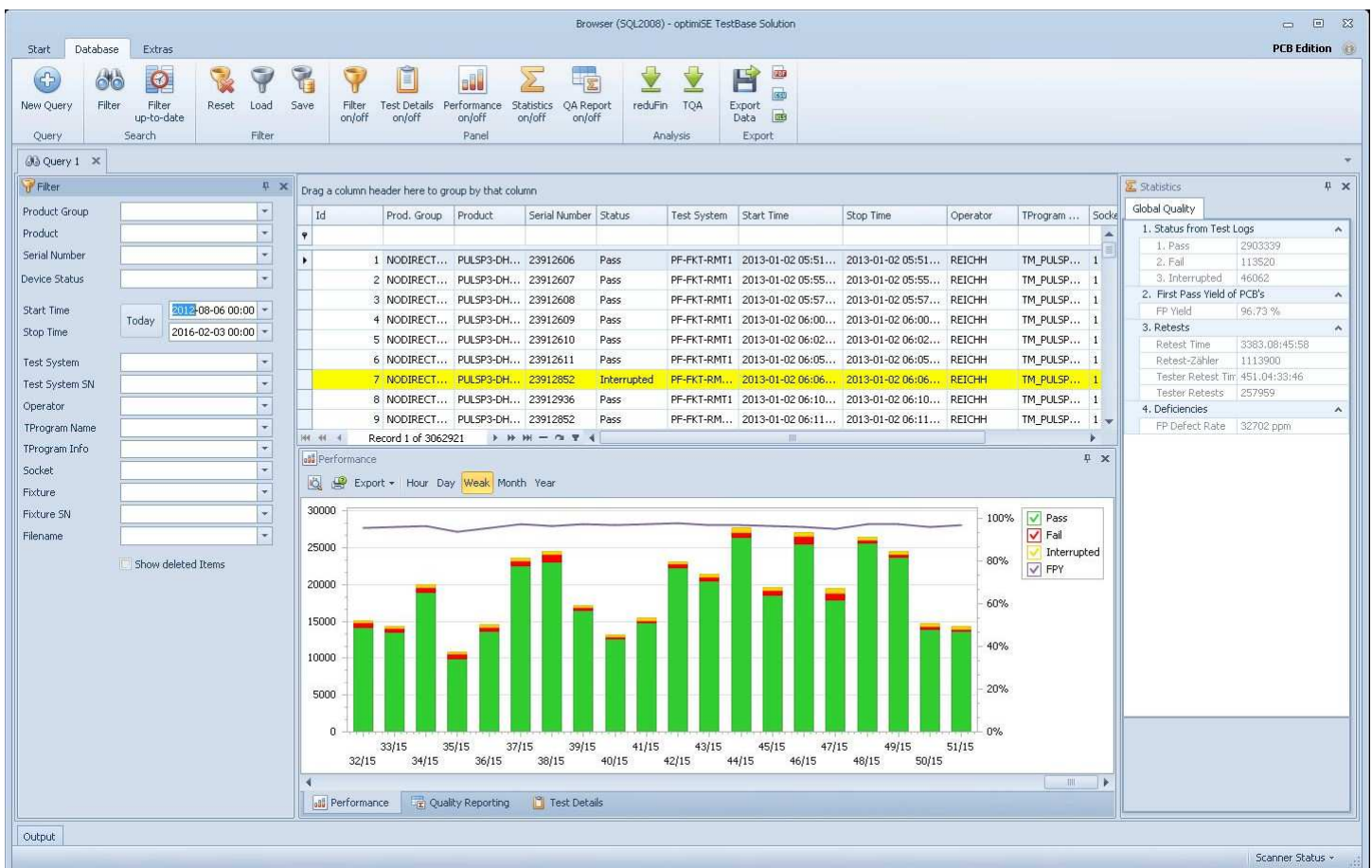
Yellow = > Automated tools operating mainly in background

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

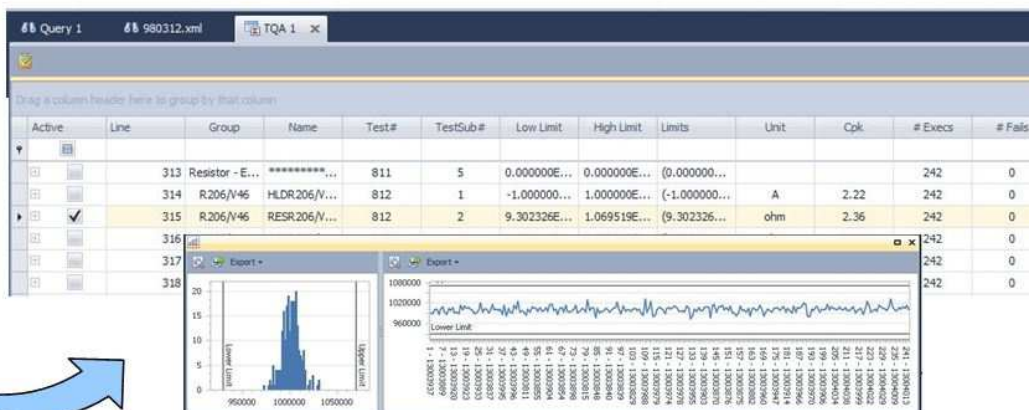


The example shows a database with app. 3 million entries at a double-digit GB size.



- 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**:

Id	Prod. Group	Product	Serial Number	Status	Test System	Start Time	Stop Time	Operator	TProgram
60537	EGO	980312_98...	13003937	Pass	31	2013-01-10 07:43...	2013-01-10 07:44...	FERTIGUNG	75.4%
60538	EGO	980312_98...	13003838	Pass	31	2013-01-10 07:46...	2013-01-10 07:47...	FERTIGUNG	75.4%
60539	EGO	980312_98...	13003918	Pass	31	2013-01-10 07:47...	2013-01-10 07:47...	FERTIGUNG	75.4%
60540	EGO	980312_98...	13003915	Pass	31	2013-01-10 07:47...	2013-01-10 07:48...	FERTIGUNG	75.4%
60541	EGO	980312_98...	13003888	Pass	31	2013-01-10 07:48...	2013-01-10 07:49...	FERTIGUNG	75.4%
60542	EGO	980312_98...	13003917	Pass	31	2013-01-10 07:49...	2013-01-10 07:49...	FERTIGUNG	75.4%
60543	EGO	980312_98...	13003889	Pass	31	2013-01-10 07:50...	2013-01-10 07:50...	FERTIGUNG	75.4%
60544	EGO	980312_98...	13003890	Pass	31	2013-01-10 07:51...	2013-01-10 07:51...	FERTIGUNG	75.4%
60545	EGO	980312_98...	13003887	Pass	31	2013-01-10 07:51...	2013-01-10 07:52...	FERTIGUNG	75.4%
60546	EGO	980312_98...	13003893	Pass	31	2013-01-10 07:52...	2013-01-10 07:53...	FERTIGUNG	75.4%
60547	EGO	980312_98...	13003894	Pass	31	2013-01-10 07:53...	2013-01-10 07:53...	FERTIGUNG	75.4%



- **Further PCB and test analyses:**

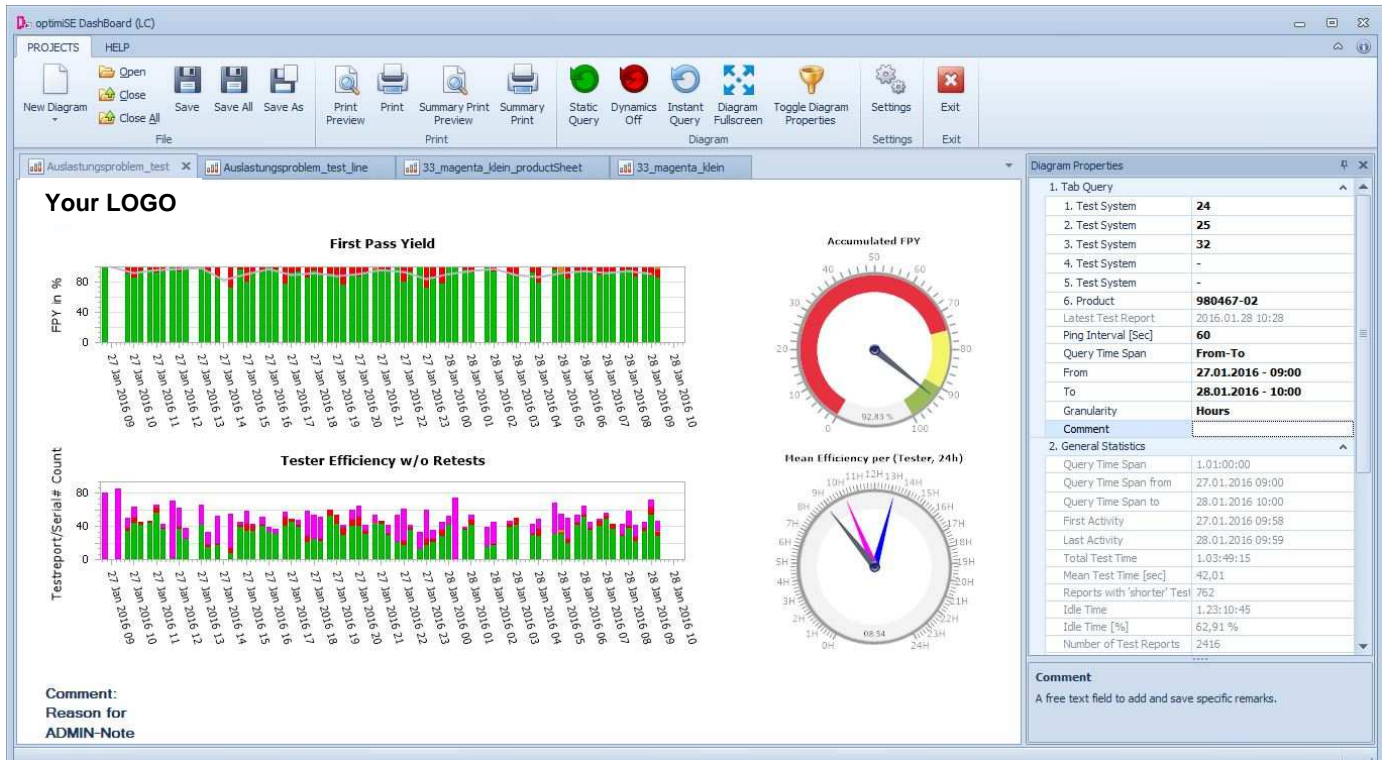
Product Name	TProgram ...	Test System	PCB's	First Pass Y...	Yield	Pass PCB's	Fail/Interru...	Retest(s) ...	1st Retest ...	2nd R...
980381	75.469.132	5	15	93.33	93.33	14	1	0	0	
980381	75.469.132	4	15	100.00	100.00	15	0	0	0	
980381	75.492.804	3	1053	99.72	99.72	1050	3	3	3	
980381	75.469.857	3	300							
980381	75.469.671	3	576							

Line	Group	Name	Test#	TestSub#	Status	Result	Low Limit	High Limit	Rule	Unit
1	Nestabfrage	LNKNestab...	448	1	Pass	1.337	0.	10.	ANL	Ohm
2	SHO NET G...	SHO NET G...	149	1	Pass	20.62	10.	100.	ANL	Ohm
3	E500	LNKE500 6...	151	1	Pass	0.6	0.	10.	ANL	Ohm
4	FN01	LNKF01 6...	153	1	Pass	0.837	0	10	ANL	Ohm

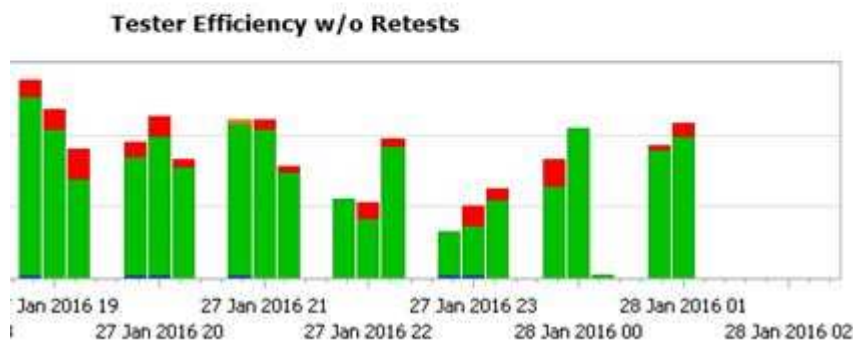
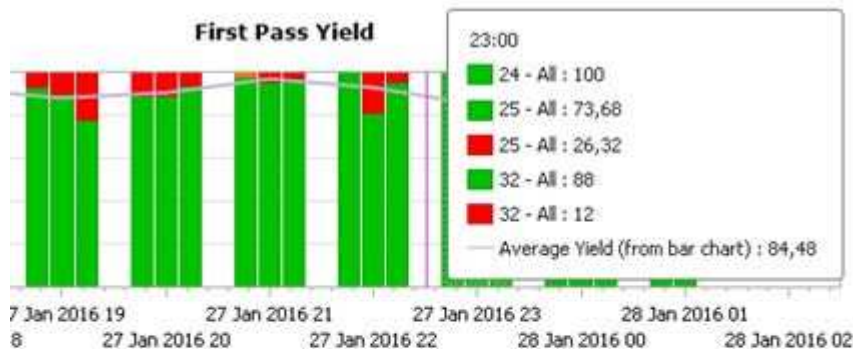




Das Tester Dashboard



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



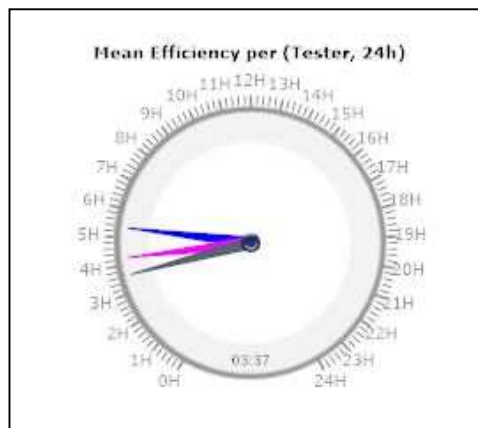


The ‚Product Line Sheet‘ displays the actual sequence of PCB passing through the tester(s) with the thickness of the bars corresponding to the individual test times:



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/Abort'	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



Include Week-ends?	False
Display Handling-Times?	True
Display Handling-Times?	
Handling Times are calculated and displayed: Magenta Arrow = Test time plus actual handling time. Blue Arrow = Test time plus planned handling time.	

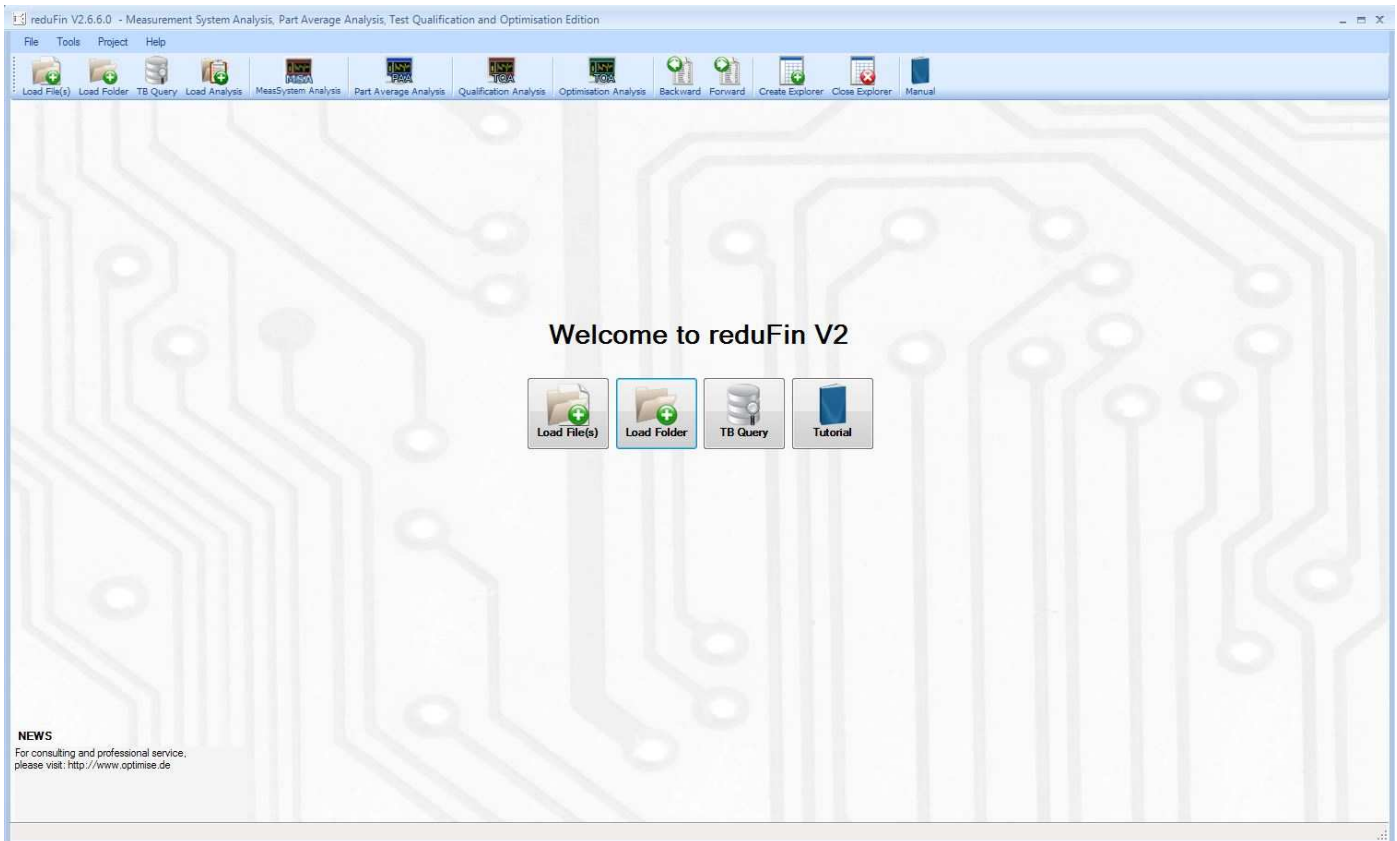
- Actual Test Times
- Actual (Test Times + HandlingTimes)
- Actual (Test Times + planned, i.e., predefined HandlingTimes) are displayed!



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

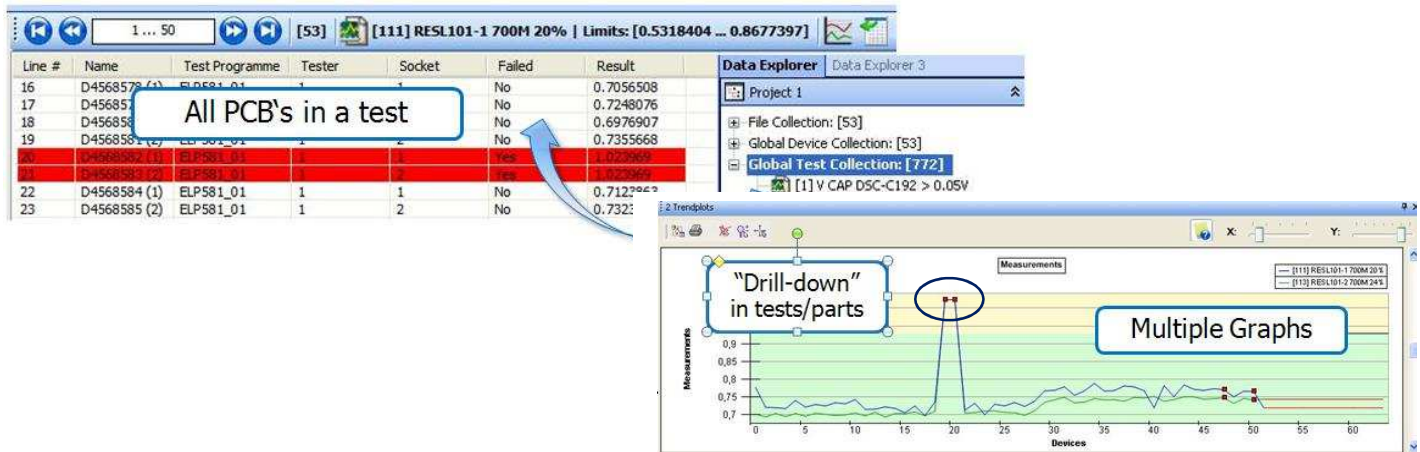
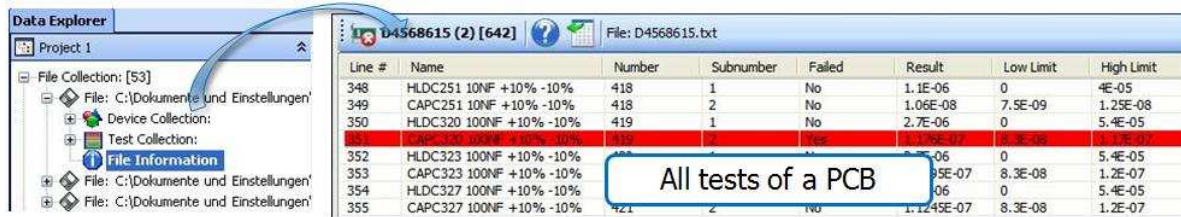
- Test correlations, escape risks
- Information content of tests
 - Test coverage overlap
 - Test time overhead due to redundancy

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



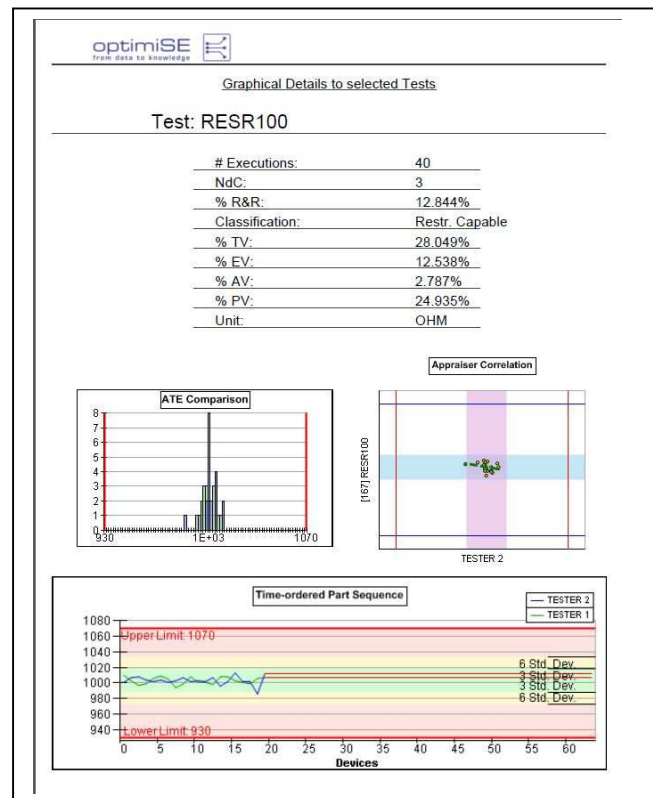
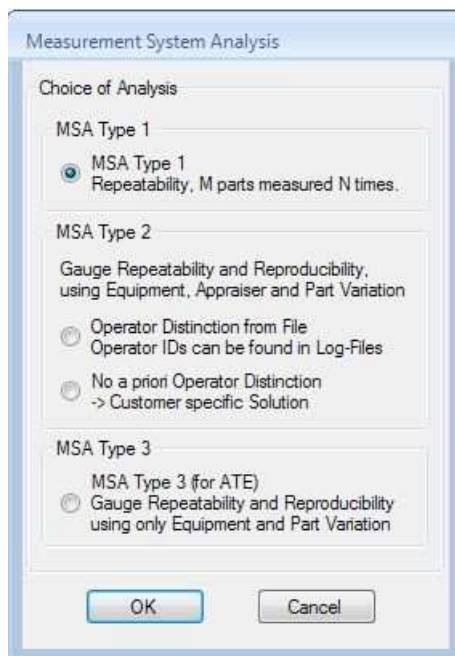
Monitoring

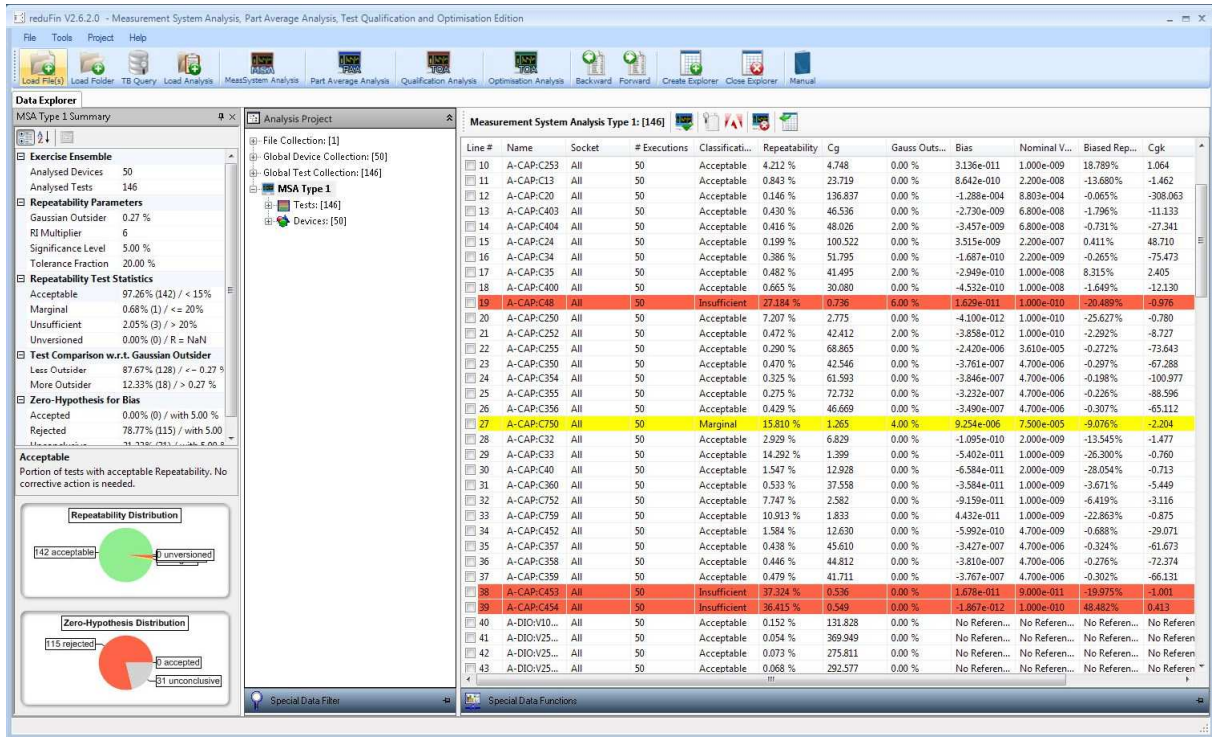
- Details about parts and tests are only a few clicks away in the **Data Explorer**



GR&R

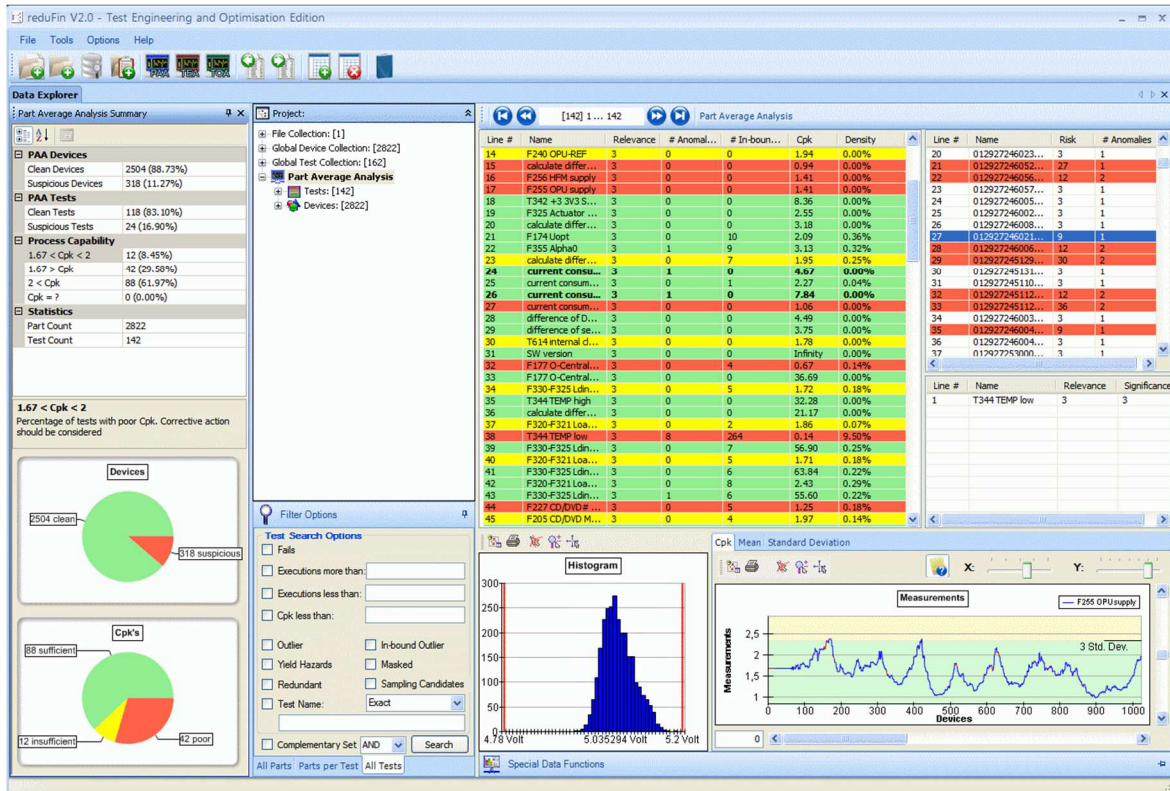
- A GR&R Analysis with comprehensive reporting for all tests in the test programme at a few clicks





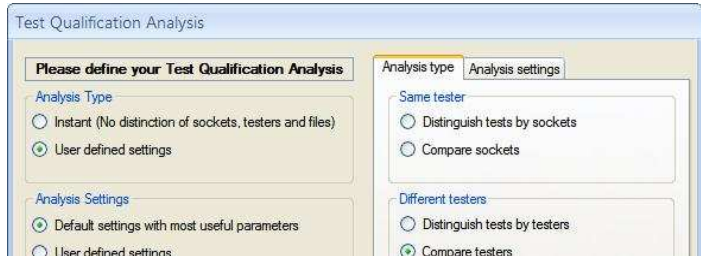
Part Average Analysis

- A statistical method for latent defect diagnosis and avoidance



Qualification

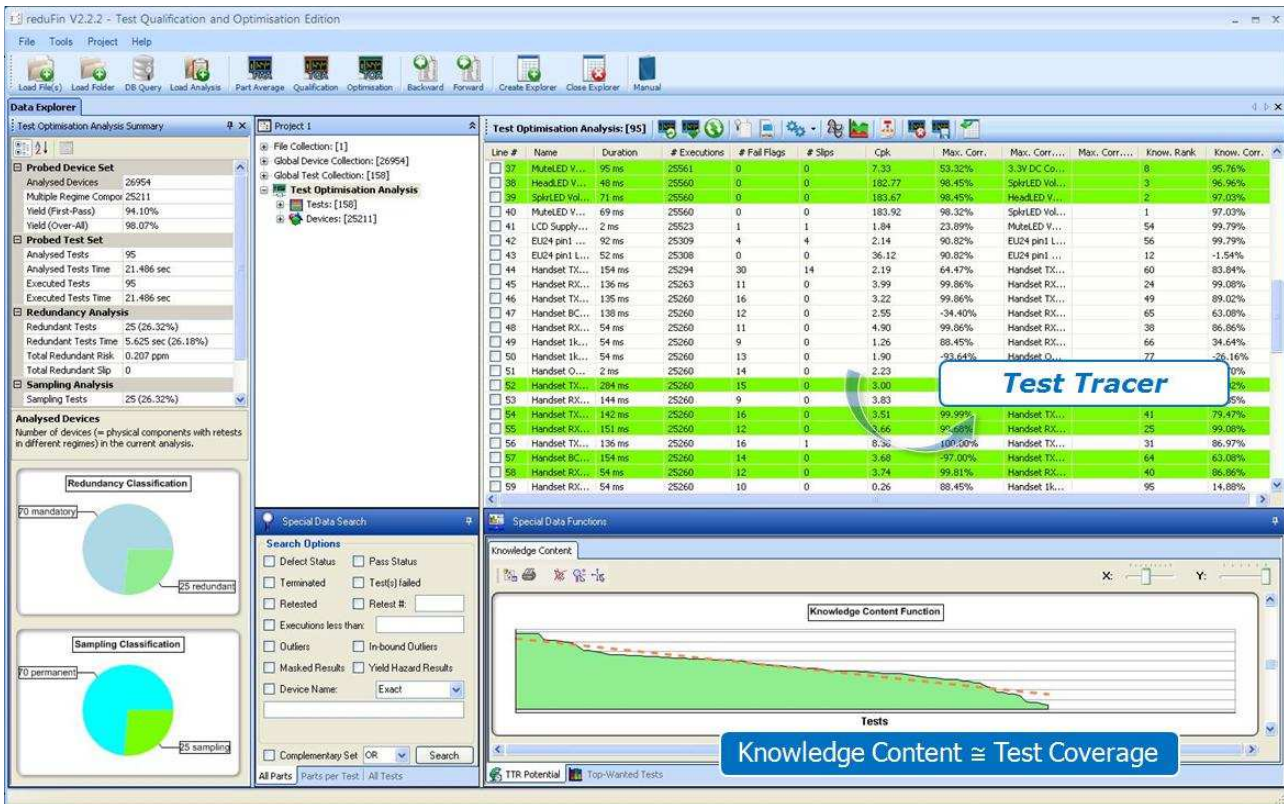
- **Qualification Analysis** shows “Everything” for single tests at a few mouse clicks



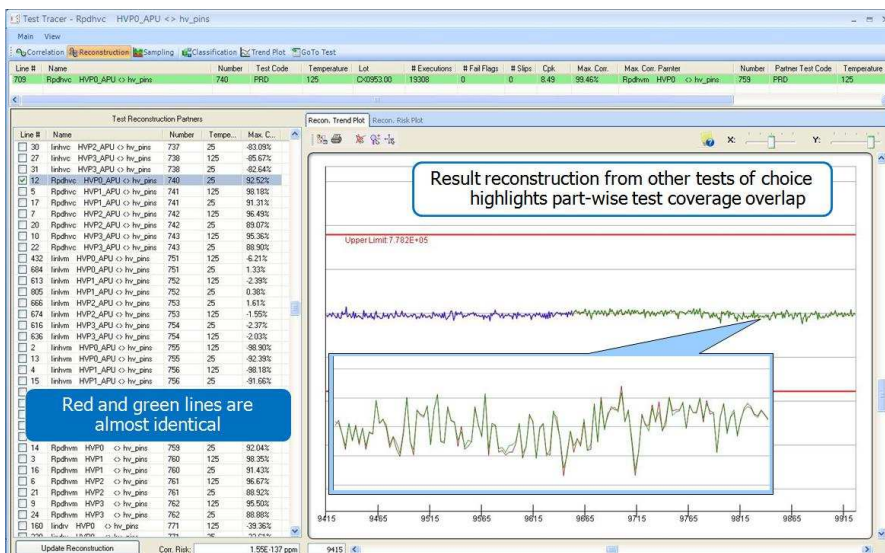
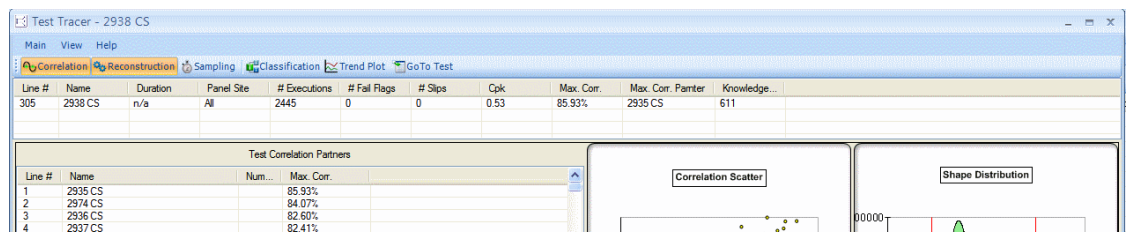
The **Test Viewer** provides a complete view on every test

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.



more information? Please see www.optimise.de



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.

Event Status of WatchDog

WatchDog [1]:

SUMMARY	
Total devices processed:	58
Devices differing from the golden samples:	15 (25.9%)

DETAILS	
Devices missing a golden sample reference:	0 (0.0%)
Devices having a different test plan:	0 (0.0%)
Devices having tests missing:	15 (25.9%)
Devices having tests with changed limits:	0 (0.0%)
Devices having unreferenced tests:	11 (19.0%)

Total missing tests:	88
Total tests with changed limits:	0
Total unreferenced tests:	11

Operating Status of WatchDog

Progress Indicator

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

EventViewer - optimiSE GmbH

Main Setup Help

Login Logoff Event Query Auto Event Query Quick Launch Show Profiles

Event Pattern	Frequency	Position	Name	Limits	Original Limits
1	87	1	measure 3.3Vdc at T019	Limits [3.2;3.4]	Original Limits [Unkno...
2	1	2	Measure voltage at T0...	Limits [0.1;0.15]	Original Limits [0.0;0.15]
3	1	3	Measure voltage at T0...	Limits [0.1;0.15]	Original Limits [Unkno...
4	1	4	meaaaasure 3.3Vdc at...	Limits [3.2;3.4]	Original Limits [Unkno...
5	1				
6	1				
7	1				
8	1				
9	1				

Events

8 (Additional Test), 6 (Limits Changed), 2 (Missing Test), 1 (Program Changed), 1 (Unreferenced Test), 1 (Ok)

Time Stamp	Tester	Program Changed	Unreferenced T...	Missing Test	Limits Changed	Additional Test
2/23/2006 10:26...	ALTWF026	No	No	Yes	Yes	Yes

Pattern

```

- <Device>
  <Id>:3060800220</Id>
  <Product>B&O A13 Power:V1.0</Product>
  <Testplan>C:\FTS\Apps\B&O_A13\V1.0
  \sequences\B&O_A13_Power.seq:C:\FTS\Apps\B&O_A13\V1.0
  \Config\B&O_A13_Power.ini</Testplan>
  <Tester>ALTWF026</Tester>
  <Socket>0</Socket>
  <Status>True</Status>
  <TimeStamp>2006-02-23T10:26:27.0000000</TimeStamp>
  - <MissingTest>
    <Test Name=measure 3.3Vdc at T019' LowLimit=3.2' HighLimit=3.4'
    OrigLowLimit=NaN' OrigHighLimit=NaN' Version=0' />
  </MissingTest>
  - <LimitsChanged>
    <Test Name=Measure voltage at T014' LowLimit=0.1' HighLimit=0.15'
    OrigLowLimit=0' OrigHighLimit=0.15' Version=1' />
  </LimitsChanged>
  - <AdditionalTest>
    <Test Name=Measure voltage at T014' LowLimit=0.1' HighLimit=0.15'
    OrigLowLimit=NaN' OrigHighLimit=NaN' Version=1' />
    <Test Name=meaaaasure 3.3Vdc at T019' LowLimit=3.2'
    HighLimit=3.4' OrigLowLimit=NaN' OrigHighLimit=NaN' Version=0' />
  </AdditionalTest>
</Device>

```

Device Properties

ID: 3060800220
Product: B&O A13 Power:V1.0
Program: C:\FTS\Apps\B&O_A13\V1.0\sequences\B&O_A13_Power.seq
Tester: ALTWF026
Socket: 0
Status: Passed
Time Stamp: 2/23/2006 10:26:27 AM

Comments: sdsd

Complete Save