R&S®TM G5
Test Management Software G5
User Manual

5017.1565.12 - 01.12

Test & Measurement

User Manual

ROHDE&SCHWARZ

Muehldorfstr. 15, 81671 Munich, Germany
Phone: +49 89 41 29 - 0
Fax: +49 89 41 29 12 164
E-mail: info@rohde-schwarz.com
Internet: http://www.rohde-schwarz.com

The following abbreviations are used throughout this manual:
R&S®TM G5 is abbreviated as R&S TM G5

Contents

1 How to use the manual

1.1 Introduction

This document contains a detailed description of the Test Management Software G5. For quick information see the "Getting Started" manual.

Minor differences between the software and this manual due to technical progress are possible. Refer to the Online Help for the latest information.

The program runs under the Microsoft Windows XP operating system. It is assumed that the user has some basic knowledge in the operation of the Windows™ user interface.

Do not make any manual settings on the individual devices or changes in the cabling of the DUT (Device Under Test) while the program is running unless requested to do so by the program.

Device-specific error messages will not be dealt with in this manual.

The symbols used in the manual are explained in this section.

Information: Important or supplementary information.

1. Working step 1 to indicate order of tasks to be performed.
2. Working step 2 to indicate order of tasks to be performed.

► Only one working step or working steps without defined order.

The following text markers are used throughout this documentation:

Convention	Description
"Graphical user interface elements"	All names of graphical user interface elements on the screen, such as dialog boxes, menus, options, buttons, and softkeys are enclosed by quotation marks.
KEYS	Key names are written in capital letters.
`File names, commands, program code`	File names, commands, coding samples and screen output are distinguished by their font.
Input	Input to be entered by the user is displayed in italics.
Link	Links that you can click are displayed in blue font.
"References"	References to other parts of the documentation are enclosed by quotation marks.

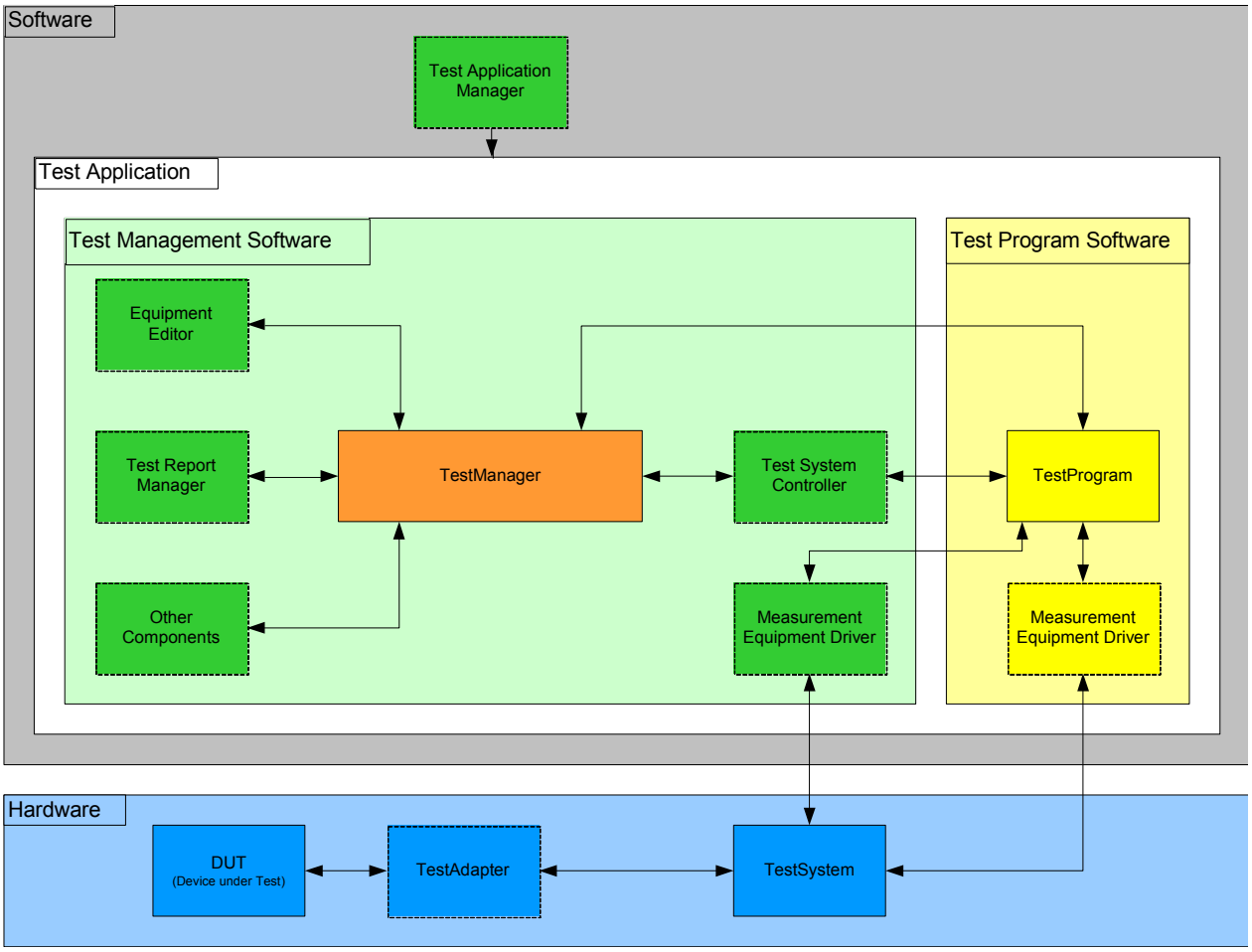
For quick and short information on the Management Software G5 refer to "Getting Started - Test Management Software G5".

1.2 Synonyms

G5 Item	Synonyms
Test Document	Test Specification
Device	Product Unit Test Object
DUT Device Under Test	UUT Unit Under Test
Material Number Ident Number	Part Number
User Tester	Operator
TAZ MI Modification Index	Mod. Status Modification Status Modification Index Change Index Revision Index
Master Test Sequence	Acceptance Test Procedure

2 Introduction

The Test Management Software (Generation 5), or more easily namedTM G5, is the basis for the execution of Test Programs. It contains drivers, runtime environment and components. The Test Program which is usually distributed separately, requires theTM G5 environment, to work successfully. TheTM G5 and the Test Program Software together are called a Test Application.



The Test Application is used in different environments such as Final Production Test and Printed Circuit Board Test, in the Service and for Calibration on different test systems (e.g. Single Test System, Scanner Test System, Burn In, Diagnosis, etc.) to record, protocol, analyze and evaluate as well as save.

3 Basic usage of the TM G5

This chapter comprises general information on software operation. Device-specific, self-explanatory features are not described.

3.1 Starting the Test Program

TheTM G5 is not intended to run as a standalone package. TheTM G5 runs in the background with a specific DUT Test Program.

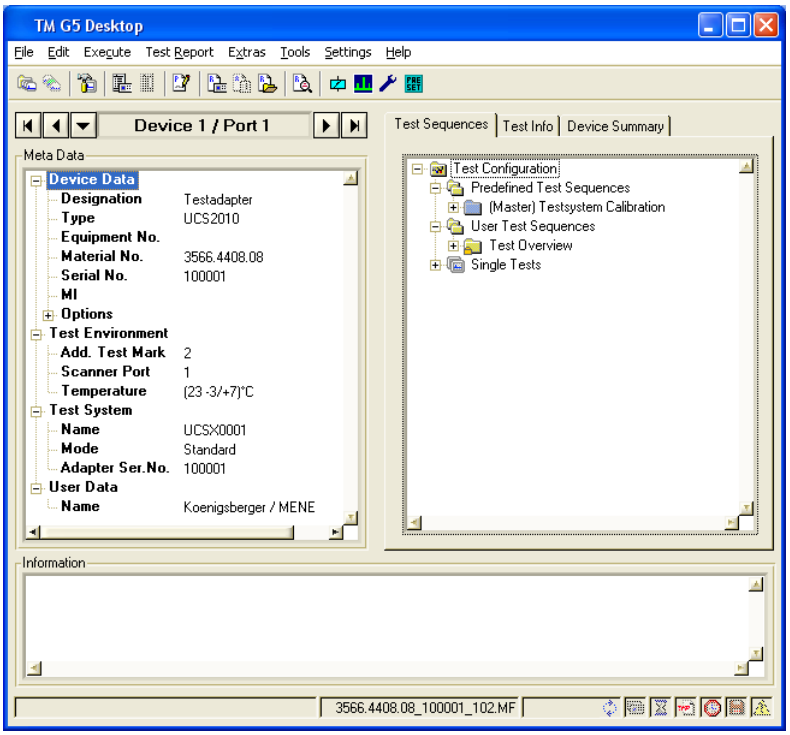
For each DUT (-family) there is separate Test Program.


UCS2010


UCS2150

► Double click on the icon presented by the Test Program (e.g. UCS2010 for SMU/SMA or UCS2150 for CMU/CRTU) to start the Test Program.

The Test Program shows a Splash Screen during the initialization and opens theTM G5 Desktop afterwards.



3.2 Licensing theTM G5

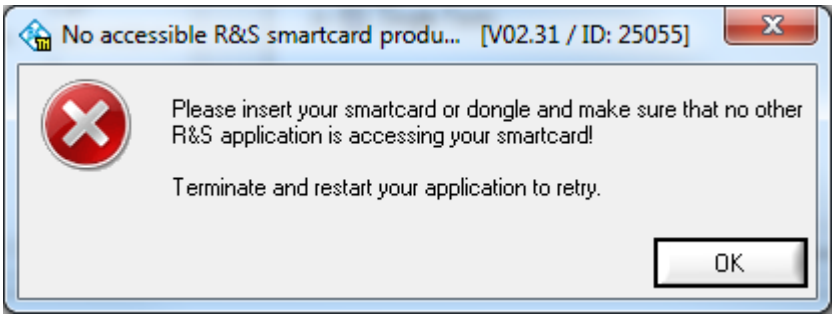
Licensing is the process of obtaining and installing Software Options and the appropriate Option Keys to enableTM G5 to run on your computer. The licensing replaces the old activation mechanism (see section 6.1 "Activating theTM G5" [p.169]).

At least two software options are required to run theTM G5; the option "MB-TMS-K1B BASE PACKAGE" and either the option "MB-TMS-K1S STANDARD EDITION" or the option "MB-TMS-K1E ENTERPRISE EDITION". For further information see the table below.

Software Option	Description
MB-TMS-K1B BASE PACKAGE	Software option that activates theTM G5 Base Package. Additional to the base package either the Standard Edition or the Enterprise Edition must be activated to get theTM G5 running.
MB-TMS-K1S STANDARD EDITION	Software option that activates theTM G5 Standard Edition. The Standard Edition permits you to perform tests, create test reports and start the additional tools (see section 7 "Additional Tools" [p. 171]). The Base Package must also be activated to get theTM G5 running.
MB-TMS-K1E ENTERPRISE EDITION	Software option that activates theTM G5 Enterprise Edition. The Enterprise Edition permits you to perform tests, create test reports and start the additional tools (see 7 "Additional Tools" [p. 171]). Additionally, the access to theTM G5 Development Libraries is enabled. TheTM G5 Development Libraries are used to develop Test Programs. The Base Package must also be activated to get theTM G5 running.

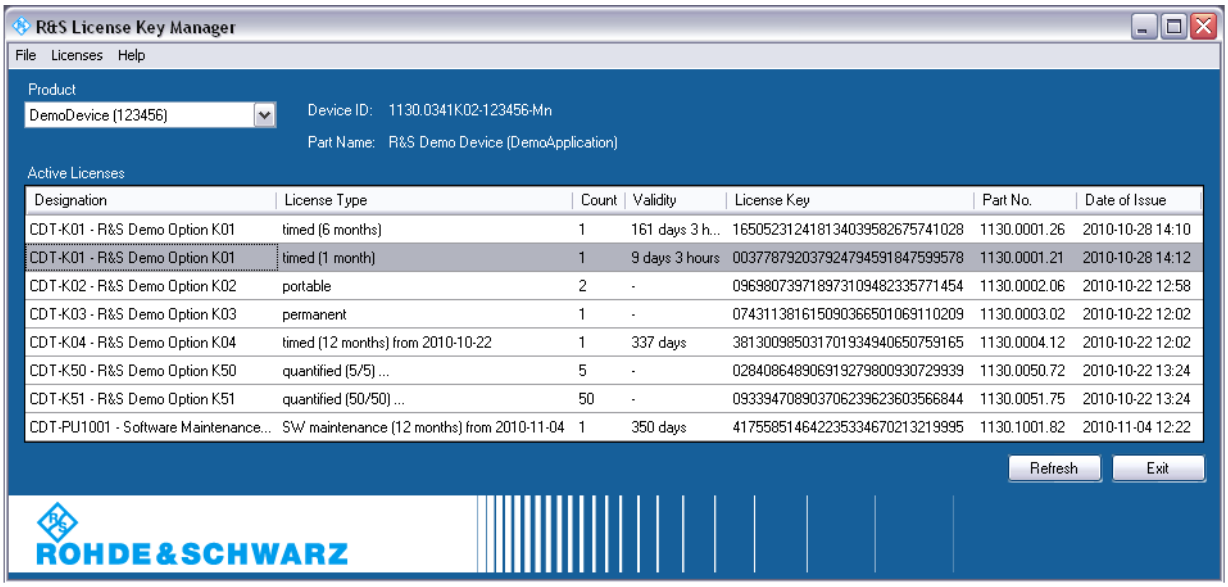
Besides theTM G5 also Test Programs can assume Software Options. These options must be available as well.

The R&S License Key Manager verifies the Software Options. If the check fails, a message will be displayed, for example:



The R&S License Key Manager is installed automatically. It is an inherent part of theTM G5 installation.

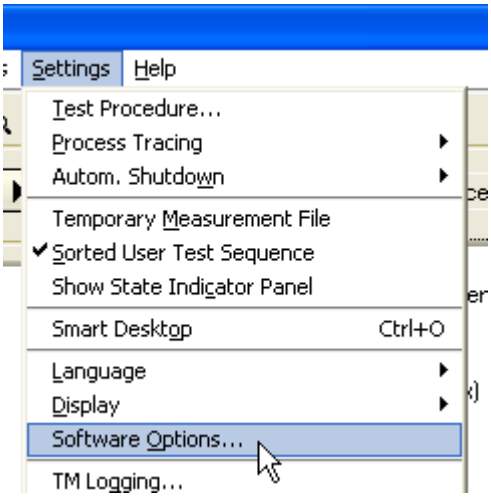
The R&S License Key Manager is used to inspect the status of the available options, and to install or remove options.



Designation	License Type	Count	Validity	License Key	Part No.	Date of Issue
CDT-K01 - R&S Demo Option K01	timed (6 months)	1	161 days 3 h...	16505231241813403958267574102 8	1130.0001.26	2010-10-28 14:10
CDT-K01 - R&S Demo Option K01	timed (1 month)	1	9 days 3 hours	00377879203792479459184759957 8	1130.0001.21	2010-10-28 14:12
CDT-K02 - R&S Demo Option K02	portable	2	-	09698073971897310948233577145 4	1130.0002.06	2010-10-22 12:58
CDT-K03 - R&S Demo Option K03	permanent	1	-	07431138161509036650106911020 9	1130.0003.02	2010-10-22 12:02
CDT-K04 - R&S Demo Option K04	timed (12 months) from 2010-10-22	1	337 days	38130098503170193494065075916 5	1130.0004.12	2010-10-22 12:02
CDT-K50 - R&S Demo Option K50	quantified (5/5) ...	5	-	02840864890691927980093072993 9	1130.0050.72	2010-10-22 13:24
CDT-K51 - R&S Demo Option K51	quantified (50/50) ...	50	-	09339470890370623962360356684 4	1130.0051.75	2010-10-22 13:24
CDT-PU1001 - Software Maintenance...	SW maintenance (12 months) from 2010-11-04	1	350 days	41755851464223533467021321999 5	1130.1001.82	2010-11-04 12:22

For further information see the Help of the R&S License Key Manager.

► Use the "Software Options" command of the menu bar to open the R&S License Key Manager.



3.2.1 Distribution of Software Options

The Software Options and the appropriate Option Keys are written to a smartcard. The smartcard must be inserted into a card reader and the card reader must be connected to your computer to get theTM G5 running.

Smartcard in SIM Card form
with relevant card reader

The option keys, the card reader and the smartcard can be obtained via the standard Rohde & Schwarz purchase channels. For more information contact the Service Support Centre (see section 8 "Service Support" [p. 194]).

3.3 Elements of theTM G5 Desktop

3.3.1 Menu and Toolbar

The most commonly used functions of theTM G5 are available via a toolbar button. Other, less important or seldom used functions can be selected via the menu bar.

3.3.1.1 Menu Overview

Dimmed entries are enabled and disabled by the Test Program or Test Manager depending on the current Test Application state.

File				
	New			
		User Defined Test Sequence		see section 3.6.2 "User defined Test Sequences" [p. 49]
		Measurement file		see section 4.5 "Creating and Deleting a Measurement File" [p. 142]
	Load			
		User Defined Test Sequence…		see section 3.6.2 "User defined Test Sequences" [p. 49]
		Configuration Database [1]		
		Test Program… [1]		
	Save			
		User Defined Test Sequence		
	Save As			
		User Defined Test Sequence…		see section 3.6.2 "User defined Test Sequences" [p. 49]
	Save Copy As			
		User Defined Test Sequence…		see section 3.6.2 "User defined Test Sequences" [p. 49]
	Delete			
		User Defined Test Sequence…		
			Selected	see section 3.6.2 "User defined Test Sequences" [p. 49]
			Stored	see section 3.6.2 "User defined Test Sequences" [p. 49]
		Measurement File		see section 4.5 "Creating and Deleting a Measurement File" [p. 142]
	Exit			

[1] Not yet implemented

Edit			
	Configuration Database		
		Open Editor…	see section 3.5 "Setting up DUT and Test Configuration" [p. 42]
		Update…	
	Test Report Front Page…		see section 3.7.6 "Filling in Test Report Front Page Data" [p. 57]
	User…		see section 3.4.3 "User Name" [p. 39]
	Test System Name...		see section 3.4.4 "Test System Name" [p. 40]
	Test Adapter Ser. No... [1)]		see section 3.4.5 "Test Adapter Serial Number" [p. 41]
	Test Adapter MI... [1)]		see section 3.4.6 "Test Adapter Modification Index" [p. 41]

[1)] Depending on the Test Application configuration the item might be invisible

Execute		
	Master Test Sequence	see section 3.7.1 "Performing the Master Test Sequence" [p. 54]
	Master Test Sequence Appendix	see section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]
	Test Overview Test Sequence	see section 3.7.3 "Performing the Test Overview Test Sequence" [p. 55]
	Continue	

Test Report			
	Customer Report		
		Current DUT	see section 3.11.2 "999999Customer Test Report of current DUT" [p. 73]
		DUT…	see section 3.11.2 "999999Customer Test Report of current DUT" [p. 73]
	Test Overview…		see section 3.7.8 "Viewing the Test Overview" [p. 61]
	Report…		see section 4.14 "Creating an individual Test Report" [p. 152]
	Selected Tests/Sequences…		see section 3.11.4 "Test Report of selected Tests" [p. 74]

Extras	
	<Test Program defined Items>

Tools			
	Measurement Files		
		Transfer...	see section 3.12.6.6 "Transferring the Measurement File" [p. 93]
		Retransfer...	see section 3.12.6.6 "Transferring the Measurement File" [p. 93]
	Measurement Data Export…		see section 4.4 "Exporting the Measurement Data" [p. 141]
	Equipment Editor... [1)]		see section 7.2 "Equipment Editor" [p. 173]
	Process Tracing Viewer… [1)]		see section 7.4 "Process Tracing Viewer" [p. 177]
	Tool Center… [1)]		see section 7.5 "Tool Center" [p. 183]
	Report Print… [1)]		see section 7.6 "Report Print" [p. 184]
	Statistic Viewer… [1)]		see section 7.7 "Statistic Viewer" [p. 186]
	Manual QIS Input… [1)]		see section 7.8 "Manual QIS Input" [p. 187]
	BDV… [1)]		see section 7.9 "BDV (Board Data Viewer)" [p. 189]
	Delivery Dialog… [1)]		see section 7.10 "Delivery Dialog" [p. 190]

[1)] Depending on the Test Application configuration the item might be invisible

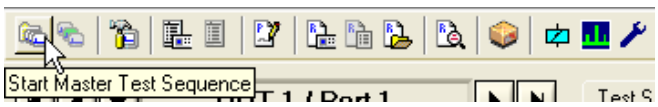
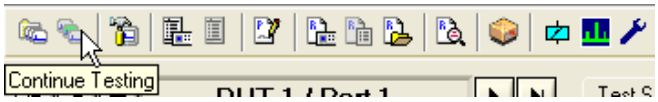
Settings			
	Test Procedure...		see section 4.3 "Definition of the Test Procedure" [p. 130]
	Process Tracing		
		Recording	see section 4.8 "Tracing the Test Process" [p. 144]
		Record next System Startup	see section 4.8 "Tracing the Test Process" [p. 144]
		Display…	see section 4.8 "Tracing the Test Process" [p. 144]
	Autom. Shutdown		
		Active	see section 4.9 "Automatic Test System Shutdown" [p. 146]
		Time…	see section 4.9 "Automatic Test System Shutdown" [p. 146]
	Temporary Measurement File		see section 4.6 "Creating a temporary Measurement File" [p. 143]
	Sorted User Test Sequence		see section 3.6.2 "User defined Test Sequences" [p. 49]
	Show State Indicator Panel		see section 4.10 "State Indicator Panel" [p. 147]
	Smart Desktop		see section 4.15 "Using the Smart Desktop" [p. 154]
	Language		
		German	see section 3.4.2 "Language" [p. 38]
		English	see section 3.4.2 "Language" [p. 38]
	Display [1)]		
		Compact Alignment	see section 3.4.1 "Desktop Orientation Settings of the Standard Desktop" [p. 37]
		Vertical Alignment	see section 3.4.1 "Desktop Orientation Settings of the Standard Desktop" [p. 37]
		Horizontal Alignment	see section 3.4.1 "Desktop Orientation Settings of the Standard Desktop" [p. 37]

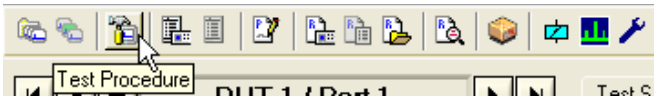
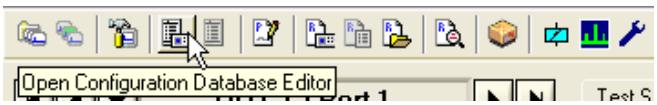
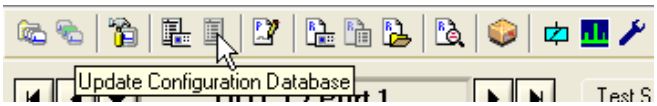
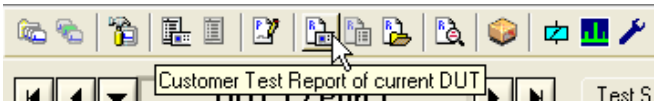
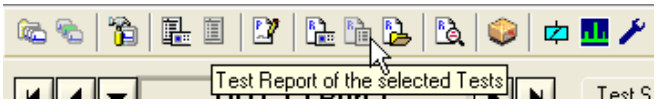
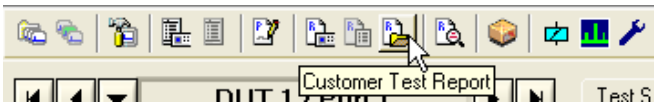
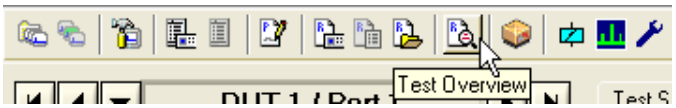
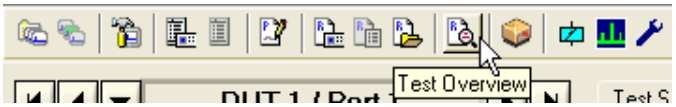
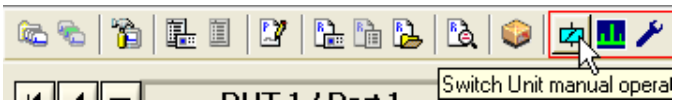
Settings			
	Software Options…		see section 3.2 "Licensing theTM G5" [p. 13]
	TM Logging… [2]		
	QIS [1]		
		Generate Entries automatically	see section 4.16 "Generating CAQ entries automatically" [p. 155]
		Update	see section 4.16 "Generating CAQ entries automatically" [p. 155]
	Temperature and Humidity Logging [1] [3]		

[1] Depending on the Test Application configuration the item might be invisible
[2] Locked, only accessible for Test Manager developers
[3] Not yet implemented

Help			
	Test Hints		see section 4.17.1 "Test Hints" [p. 156]
	Start-up Information		see section 4.17.2 "Start-up Information" [p. 157]
	Test System		see section 4.17.3 "Test System" [p. 157]
		<Test Program defined Items>	
	Test Program		see section 4.17.4 "Test Program" [p. 157]
		<Test Program defined Items>	
	Contents		
	Direct Help		
	Test Application State		see section 4.17.5 "Test Application State" [p. 158]
	About TM		see section 4.17.6 "Product Information" [p. 158]

3.3.1.2 Toolbar Overview

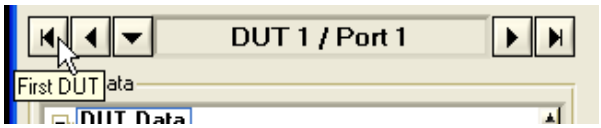
Toolbar Item	Description	Add. Information
	Starts the Master Test Sequence	3.7.1 "Performing the Master Test Sequence" [p. 54]
	Continues an interrupted test sequence	3.9.2 "Continuing a previously aborted Test Sequence" [p. 67]

Toolbar Item	Description	Add. Information
	Opens the Test Procedure dialog	4.3 "Definition of the Test Procedure" [p. 130]
	Opens the Configuration Database editor	3.5 "Setting up DUT and Test Configuration" [p. 42]
	Triggers the Test Program to update the Configuration Database	
	Opens the Test Report Front Page dialog	3.7.6 "Filling in Test Report Front Page Data" [p. 57]
	Opens the Test Report of the current device	3.11.2 "999999Customer Test Report of current DUT" [p. 73]
	Opens the Test Report displaying the selected tests of the current device	3.11.2 "999999Customer Test Report of current DUT" [p. 73]
	Opens the Measurement File Selection dialog to display the test report of a tested device	3.11.3 "Customer Test Report of specific Device" [p. 73]
	Opens the Test Overview of the current device	3.7.8 "Viewing the Test Overview" [p. 61]
	Opens the Delivery Dialog [1]	
	Starts a DUT specific test/initialization routine or displays a DUT specific panel	

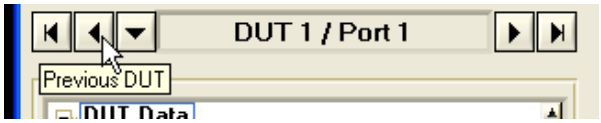
[1] Depending on the Test Application configuration the item might be invisible

3.3.2 Navigation Bar

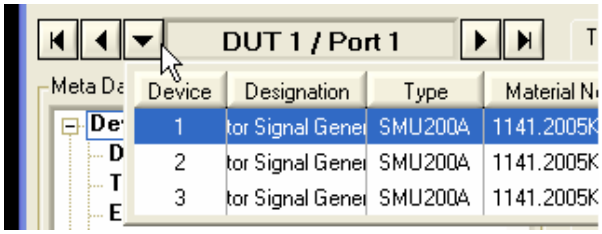
The navigation bar is used to select the current DUT. Each device of the device list can be selected. Adding a device to the device list is described in section 3.5 "Setting up DUT and Test Configuration" [p. 42] and section 4.3.1 "Multiple Device Testing Mode (only with scanner extension)" [p. 131].



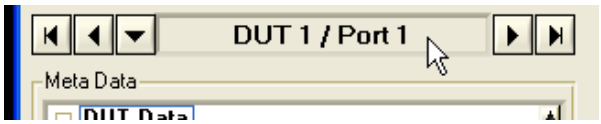
The first device of the device list is set to the current device



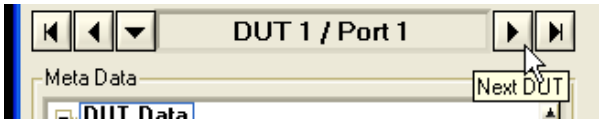
The previous device of the current device is set to the current device.



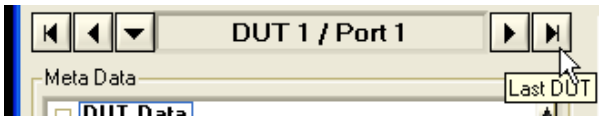
Opens the device list. A double click on a list entry sets the corresponding device to the current device.



Displays the index and the scanner port of the current device.



The next device of the current device is set to the current device.



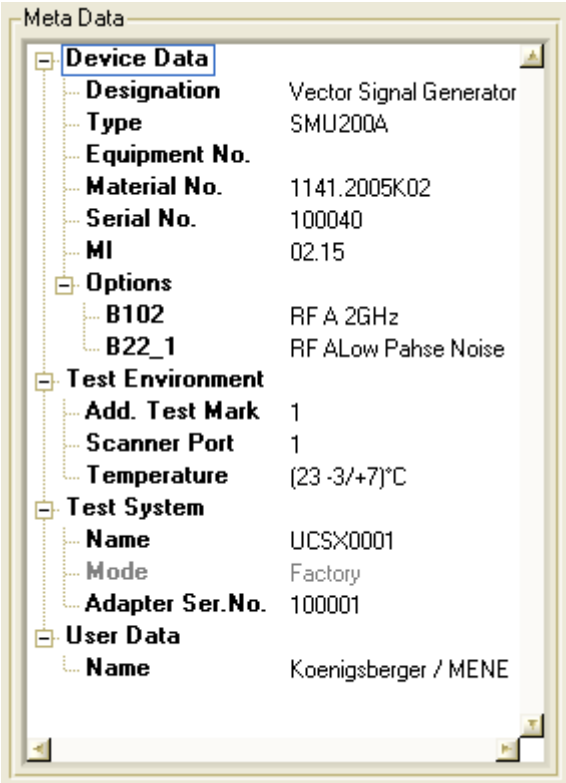
The last device of the device list is set to the current device.

3.3.3 Meta Data

In this section all device dependent data and the parameters for the test environment can be found. Editing the device data is described in section 3.5 "Setting up DUT and Test Configuration" [p. 42].

Device data which are not editable are dimmed.

Double left clicking on a editable device data will open the related edit dialog.



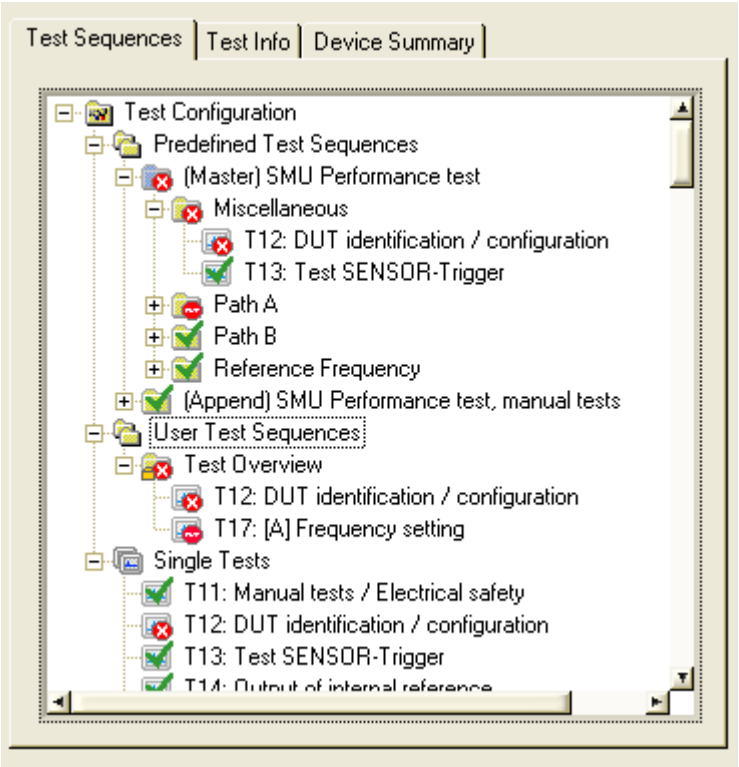
Some data, e.g. the MI (Modification Index), have relevance for production only, so the related fields may be empty in service mode.

The number and nature of data are DUT specific and can differ from Test Program to Test Program.

3.3.4 Test Information

The main part of theTM G5 Desktop is controlled by a system of tabs. The various tabs display the status of the available tests and test sequences, additional test information and the overall test status of the registered devices.

3.3.4.1 Test Sequences Tab



The "Test Sequences" Tab displays the test tree of the current device. Each sub node of the category nodes ("Predefined Test Sequences", "User Test Sequences" and "Single Tests") represents a test sequence or a test. The status of the test sequences and tests are indicated by easily understood icons.

The visibility of the category "Single Tests" is controlled by the Test Program.

Test Sequence State Icons:

- Test Sequence not yet executed
- Test Sequence result PASS
- Test Sequence result INVALID
- Test Sequence result ABORTED
- Test Sequence result FAILED

Test Sequence result UGB

Test Sequence will be skipped

A blue folder indicates that the corresponding test sequence is the Master Test Sequence.

An additional lock sign in the icon of a predefined test sequence indicates that this predefined test sequence can't be added to a user defined test sequence.
An additional lock sign in the icon of a user defined test sequence indicates that this user defined test sequence can´t be renamed and removed.

Test State Icons:

Test not yet executed

Test result PASS

Test result INVALID

Test result ABORTED

Test result FAILED

Test result UGB

Test will be skipped

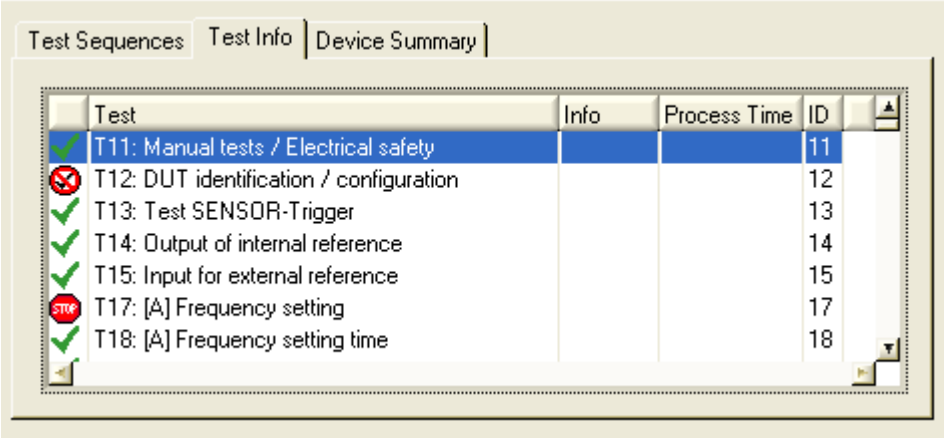
Test should be checked by the user for readjustment

An orange frame color indicates the existence of child tests. For further information see section 4.12 "Test Family and Test Cycles" [p. 149].

An additional lock sign indicates that this test can't be added to a user defined test sequence.

Working with tests and test sequences, see section 3.6 "Tests and Test Sequences" [p. 47].

3.3.4.2 Test Info Tab



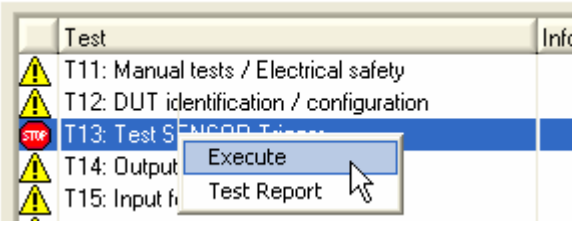
The "Test Info" Tab displays information about all tests of the current DUT. The status of the test sequences and tests are indicated by easily understood icons. The columns "Test", "Info", "Process Time" and "ID" are supplied by the Test Program and can, therefore, remain unfilled.

Test State Icons:

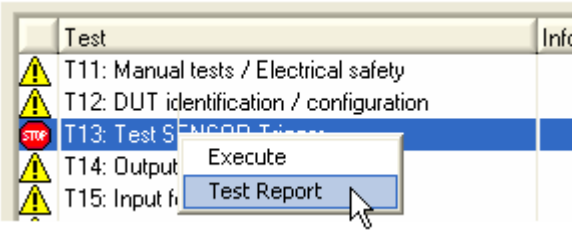
- Test not yet executed
- Test result PASS
- Test result INVALID
- Test result ABORTED
- Test result FAILED
- Test result UGB
- Test will be skipped

A right click on the tab, brings up the context menu which can be used to execute the selected test and to open a Test Report (see section 3.11 "Handling of Test Reports" [p. 71]) containing only the selected test.

► Use the "Execute" command from the context menu to execute the selected test. A left double click on a list entry will also execute that test.

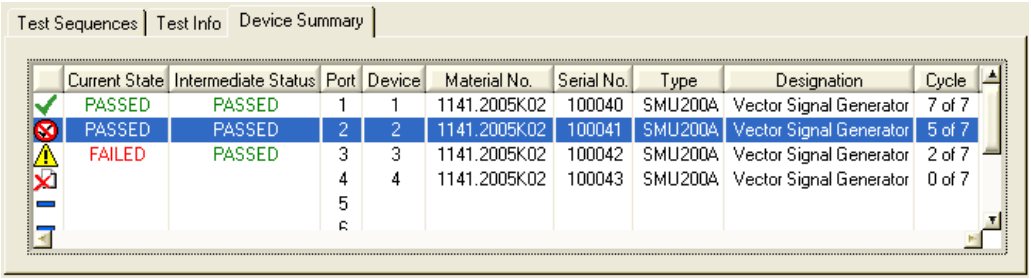


► Use the "Test Report" command to open a Test Report containing the selected test only.



The "Test Report" command of a test that will be skipped is disabled.

3.3.4.3 Device Summary Tab



Current State	Intermediate Status	Port	Device	Material No.	Serial No.	Type	Designation	Cycle
PASSED	PASSED	1	1	1141.2005K02	100040	SMU200A	Vector Signal Generator	7 of 7
PASSED	PASSED	2	2	1141.2005K02	100041	SMU200A	Vector Signal Generator	5 of 7
FAILED	PASSED	3	3	1141.2005K02	100042	SMU200A	Vector Signal Generator	2 of 7
		4	4	1141.2005K02	100043	SMU200A	Vector Signal Generator	0 of 7
		5						
		6						

The "Device Summary" Tab displays the Overall Test State of the Master Test Sequence and Master Test Sequence Appendix (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]) of all registered devices. The status is indicated by easily understood icons. Registering a device, see Multiple Device Testing Mode (see section 4.3.1 "Multiple Device Testing Mode (only with scanner extension)" [p. 131]).

Test State Icons

- Not all tests executed yet
- Overall test result PASS
- Overall test result INVALID
- Overall test result ABORTED
- Overall test result FAILED
- Overall test result UGB
- No measurement file available
- Scanner port not equipped

In addition to general device information, such as scanner port, designation, material number, etc., the current cycle information is listed. The column "Cycle" will only be filled if child tests are defined. For further information see section 4.12 "Test Family and Test Cycles" [p. 149].

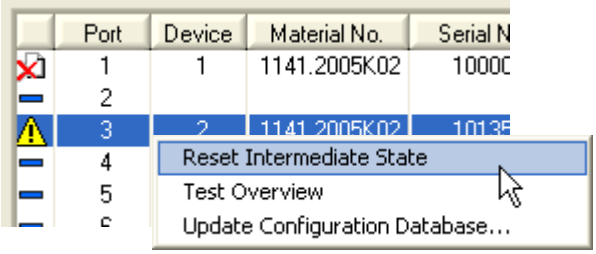
Furthermore, the Current Test State and the Intermediate Test State of the Master Test Sequence and Master Test Sequence Appendix are shown (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]).

The Current Test State is determined byTM G5 automatically like the Overall Test State. However, by determining the Current Test State the value UNTESTED is not considered. This enables the test program user to recognize the worst failure state, like UGB, FAILED, etc., before the test of the device is completed.

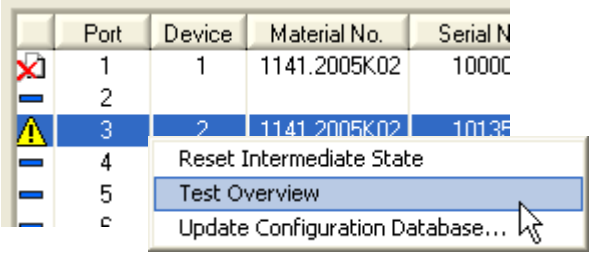
The Intermediate Test State can be used to monitor the test state within a certain time period. The determination of this state is equivalent to Current Test State determination (Exception: the values UNTESTED and INVALID are not considered). But the test program user can reset the Intermediate Test State any time.

A right click on the tab brings up the context menu which can be used to reset the intermediate test state, to open the Test Overview (see section 3.7.8 "Viewing the Test Overview" [p. 61]) and to modify device data.

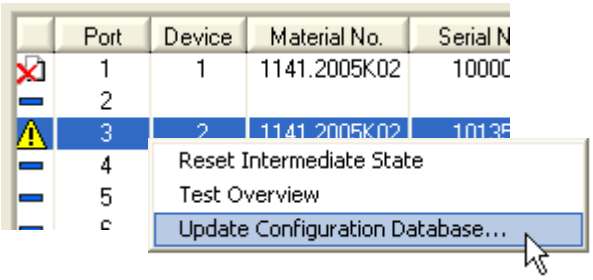
► Use the "Reset Intermediate State" command to reset the Intermediate Test State of the selected device.



► Use the "Test Overview" command to open the test overview of the selected device. A left double click on a list entry will also open the test overview of that device.

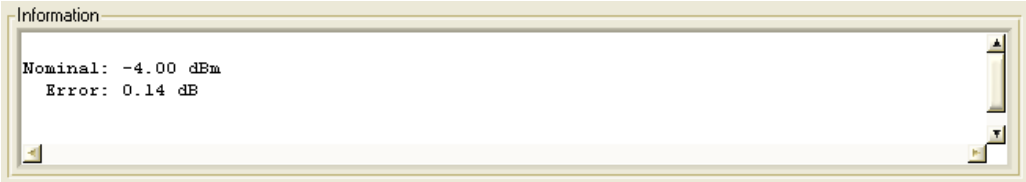


► Use the "Update Configuration Database" command to open the Configuration Database Editor (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]) while a test is running. The Endless Option of the Multiple Device Testing Mode (see section 4.3.1 "Multiple Device Testing Mode" [p. 131]) must be switched on.



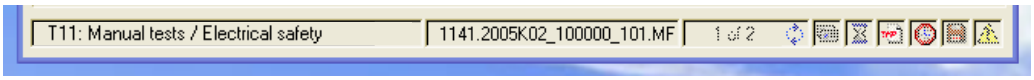
3.3.5 Information Panel

This area displays basic information concerning the current test step.

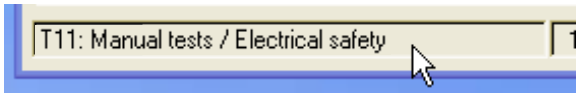
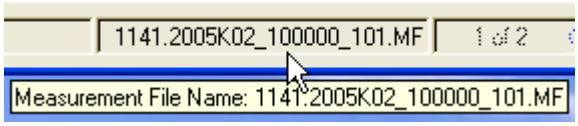
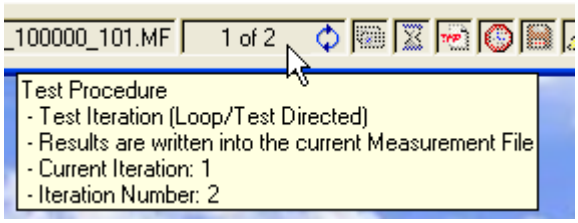


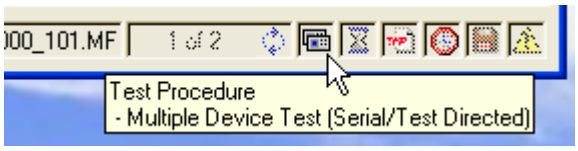
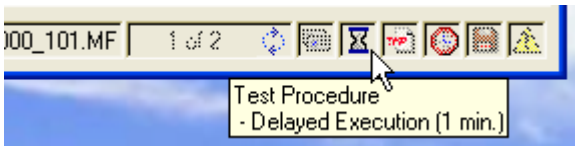
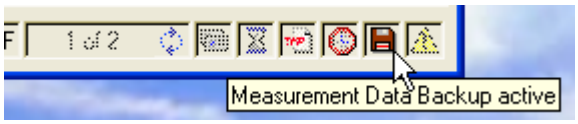
3.3.6 Status Line

Some of the mode settings are directly visible and maybe set in the status line on the bottom of theTM G5 Desktop. Additionally, the current test is displayed in the status line. Depending on the Desktop Alignment (see section 3.4.1 "Desktop Orientation Settings of the Standard Desktop") the current measurement file name is also displayed.

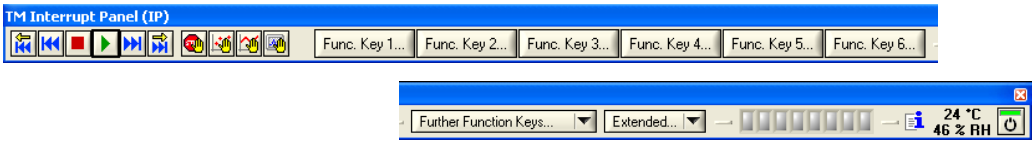


A dimmed symbol means a de-activated mode setting.

Status Line Item	Description	Add. Information
	Title of the current test.	
	Current measurement file name. This status line element is invisible in the compact and vertical desktop alignment.	3.4.1 "Desktop Orientation Settings of the Standard Desktop" [p. 37]
	Condition of test procedure concerning the test iteration. A double click on the symbol toggles the test iteration, on or off.	4.3.3 "Working with Test Iterations" [p. 135]

Status Line Item	Description	Add. Information
	Condition of test procedure concerning the multiple device test. A double click on the symbol toggles the multiple device test, on or off.	4.3.1 "Multiple Device Testing Mode" [p. 131]
	Condition of test procedure concerning the moment of test execution. A double click on the toggles the delayed test execution, on or off.	4.3.2 "Delayed Test Sequence Execution" [p. 134]
	Condition of measurement file creation. A double click on the symbol toggles the temporary measurement file creation, on or off.	4.6 "Creating a temporary Measurement File" [p. 143]
	Condition of process tracing. A double click on the symbol toggles the process tracing, on or off.	4.8 "Tracing the Test Process" [p. 144]
	Condition of measurement data backup or synchronization.	4.13 "Synchronization and Backup" [p. 151]
	Current system condition. The tool tip will display internal, not critical warnings if available.	

3.3.7 Interrupt Panel



TheTM G5 application bar, the so-called "Interrupt Panel", is used to start and terminate a test, to control the test behaviour and to execute Test Program specific routines.
The "Interrupt Panel" is always visible on the desktop. The visibility and accessibility of the several buttons depend on the Test Program configuration and Test Program state (e.g. idle mode).
Common Interrupt Panel Controls:


Restarts the previously started test sequence. Not yet implemented.


Terminates the current test and restarts this test.


Terminates the current test sequence.


Interrupts the current test.


Starts the current test or the current test sequence.


Continues the previously interrupted test.


Terminates the current test and starts the next test.


Not yet implemented!


Break on Error. For further information see section 4.2 "Working with Breakpoints" [p. 128].

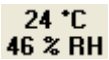

Break on Test Point. For further information see section 4.2 "Working with Breakpoints" [p. 128].


Break on Curve. For further information see section 4.2 "Working with Breakpoints" [p. 128].


Break on Test. For further information see section 4.2 "Working with Breakpoints" [p. 128].


Progress Beam indicating a running test.


Indicates a the availability of a User Note (see section 3.3.7.1 "Additional Interrupt Panel Controls" [p. 35]).



Displays the current temperature and humidity. For further information see section 3.3.7.1 "Additional Interrupt Panel Controls" [p. 35].


Switches the test system power.

3.3.7.1 Additional Interrupt Panel Controls

Further "Interrupt Panel" settings available only through the context menu.

The context menu appears by right clicking on the "Interrupt Panel".

Settings

► Use the settings commands from the context menu to position the "Interrupt Panel" on the top, left, bottom or right of the desktop, to select a monitor, to extend the panel size and to switch off the system docking attribute of the "Interrupt Panel".

If the system docking attribute is switched off, the "Interrupt Panel" can be covered by other applications. Consequently, the panel is not always visible on the desktop.

View

► Use the view commands from the context menu to show / hide the current temperature and humidity values on the panel or to open an additional dialog which displays the minimal, maximal and average of the temperature and humidity measurements.

Breakpoints

Additional to the common breakpoints (see above) further breakpoints controlled by events can be initiated. For further information see section 4.2 "Working with Breakpoints" [p. 128].

► Use the breakpoint commands from the context menu to interrupt the test procedure.

Export

► Use the export commands from the context menu to prompt and storeTM G5 specific data.

The export items are for experts. The exportedTM G5 specific data are used in certain cases during the test program development, e.g. a test program developer can create a test plan.

Tracing

Several categories and levels can be used to trace the test procedure and the communication withTM G5 components. Once the tracing is activated, a panel will pop up and will show the related information.

► Use the tracing commands from the context menu to trace the test procedure.

TM Information

► Use the "TM information" command from the context menu to display all valid the Test Manager messages.

The TM information system enables the administrator to display messages on a test system while a Test Program is running. These messages could be to indicate an upcoming update, important user hints, etc.

User Notes

► Use the user note commands from the context menu to open or create a user note.

The user notes serve as a knowledge base for test program users. The displayed information have to be defined by the users. On default the notes are stored within the related test program folder.

The Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) has to be used to define the repository of the user notes on a backup-system.

Up to 3 user note commands are available:

"General"	This command opens or creates the general user note. The General User Note contains test independent notes, but contains notes related to the current test program.
"Test <nnn>"	This command opens or creates the user note related to the current test. The "Test <nnn>" command is only available if a test is being performed.
"Test…"	This command displays a dialog containing a list of all available user notes of the current test program. A double click on a list element will open the related user note.

Help

► Use the help commands from the context menu to open this document.

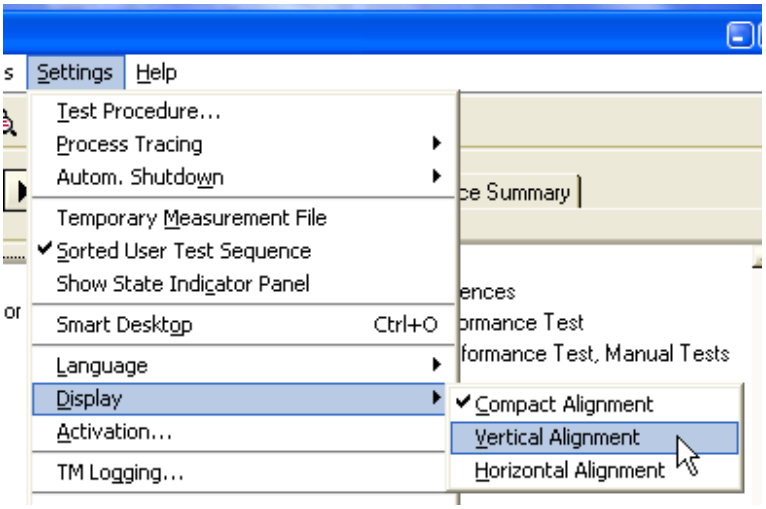
Exit

► Use the "Exit" command from the context menu to exit the test application.

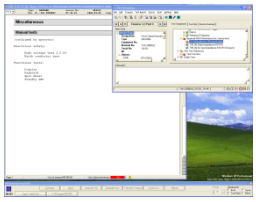
3.4 Preliminary Settings

3.4.1 Desktop Orientation Settings of the Standard Desktop

The orientation of the Standard Desktop elements can be aligned compactly, horizontally or vertically as a user preference.

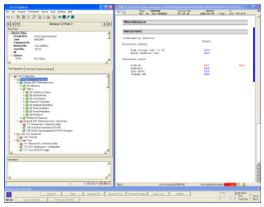


Description



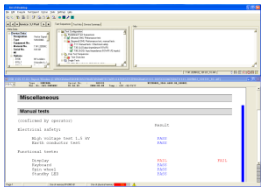
Compact Alignment:

The desktop sections Meta Data, Test Information and Information Panel are orientated compactly.



Vertical Alignment:

The desktop sections Meta Data, Test Information and Information Panel are orientated vertically.



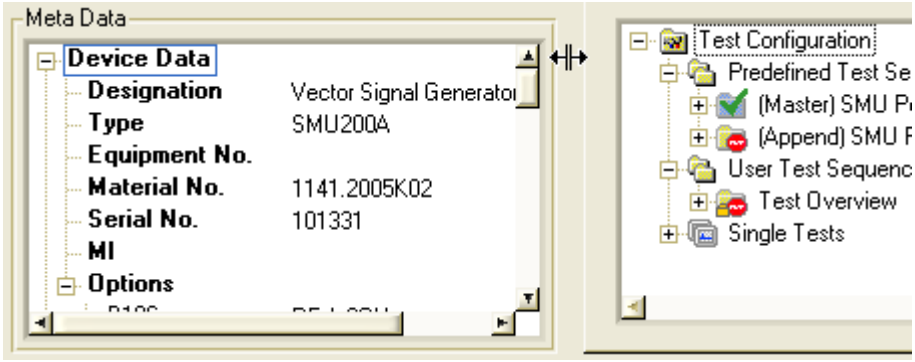
Horizontal Alignment:

The desktop Meta Data, Test Information and Information Panel are orientated horizontally.

For Additional information refer to section 3.3.3 "Meta Data" [p. 24], section "3.3.4 "Test Information" [p. 25] and section 3.3.5 "Information Panel" [p. 32].

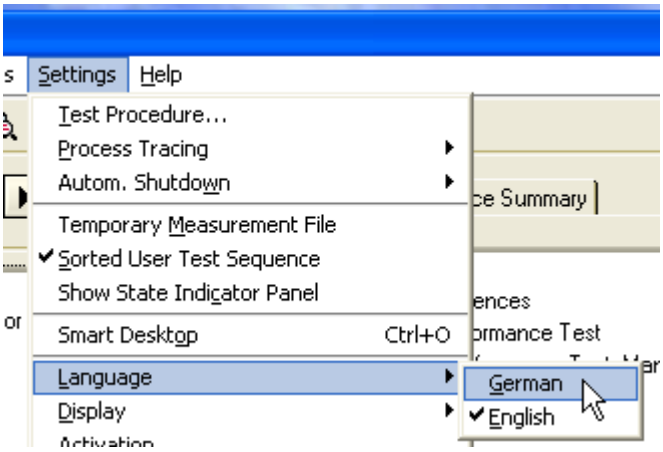
► Change the size and place of theTM G5 Desktop as preferred by using the mouse pointer.

► Change the size of the desktop elements as preferred by using the mouse pointer.



3.4.2 Language

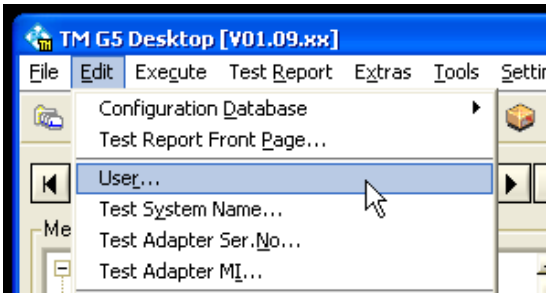
► Select the language as required.

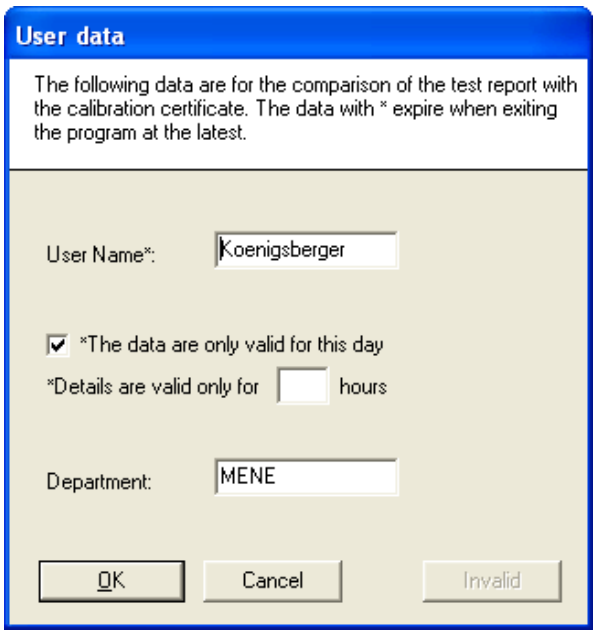


3.4.3 User Name

The name of the current Test Program user is required for several application services, such as "Test Report" (see section 3.7.6 "Filling in Test Report Front Page Data" [p. 57]) or QIS.

► Use the "User Data" dialog to define the user name and its period of validity. The user name will be exported to the relevant services.

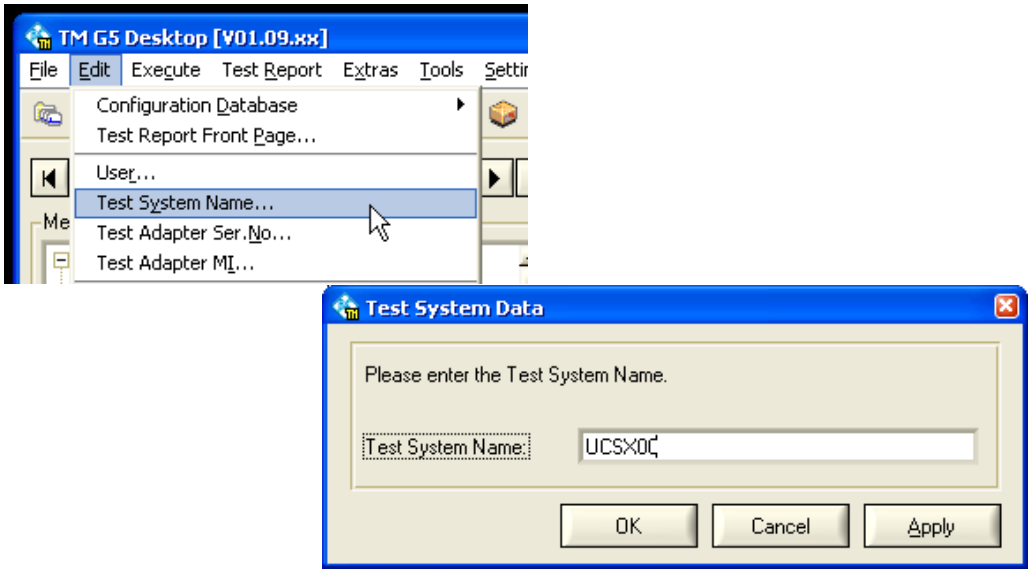




All services requiring the user name will request the data if the user name was not defined within this dialog or if the validity has expired.

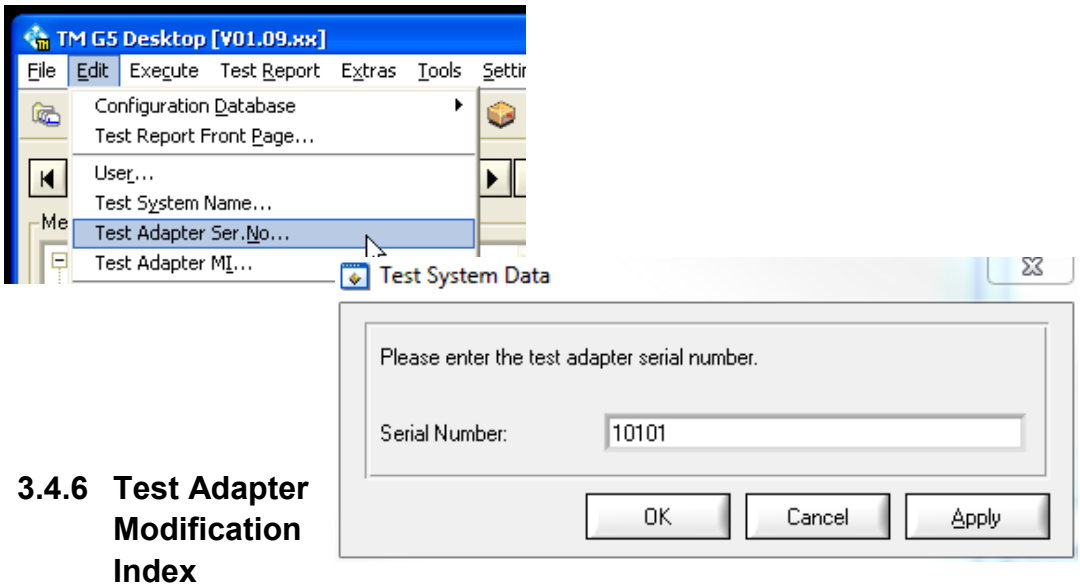
3.4.4 Test System Name

The Test System Name should have been defined during the setup process. It may be changed subsequently as required.



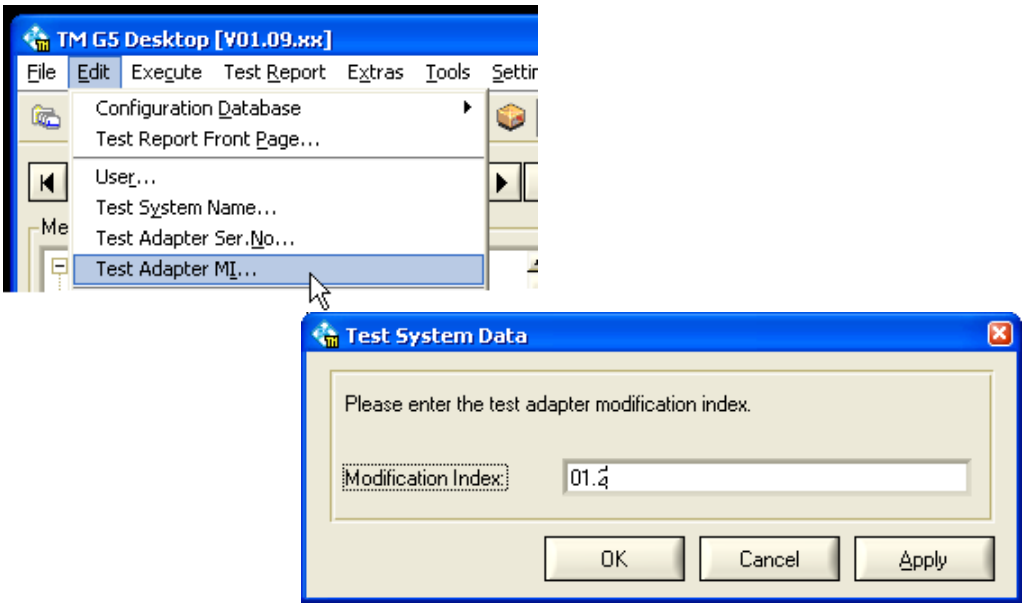
3.4.5 Test Adapter Serial Number

The Test Adapter Serial Number should have been defined during the setup process. It may be changed subsequently as required (manually or automatically).



3.4.6 Test Adapter Modification Index

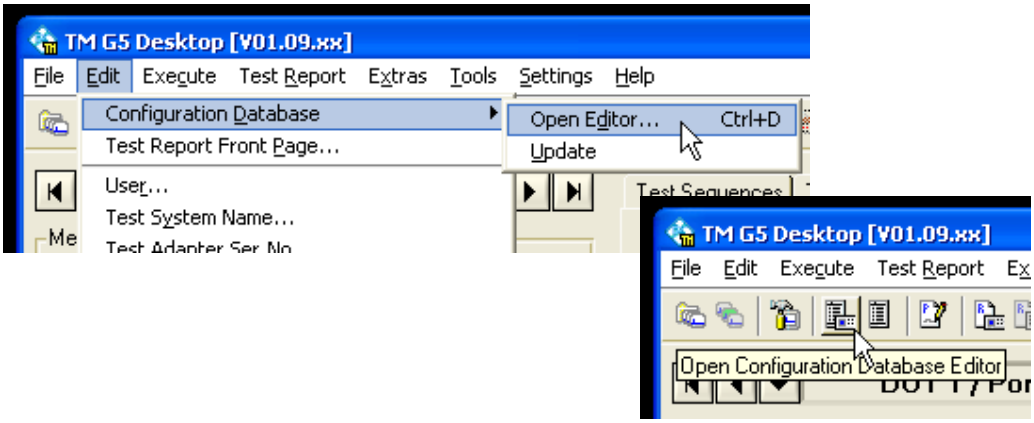
The Test Adapter Modification Index should have been defined during the setup process. It may be changed subsequently as required (manually or automatically).

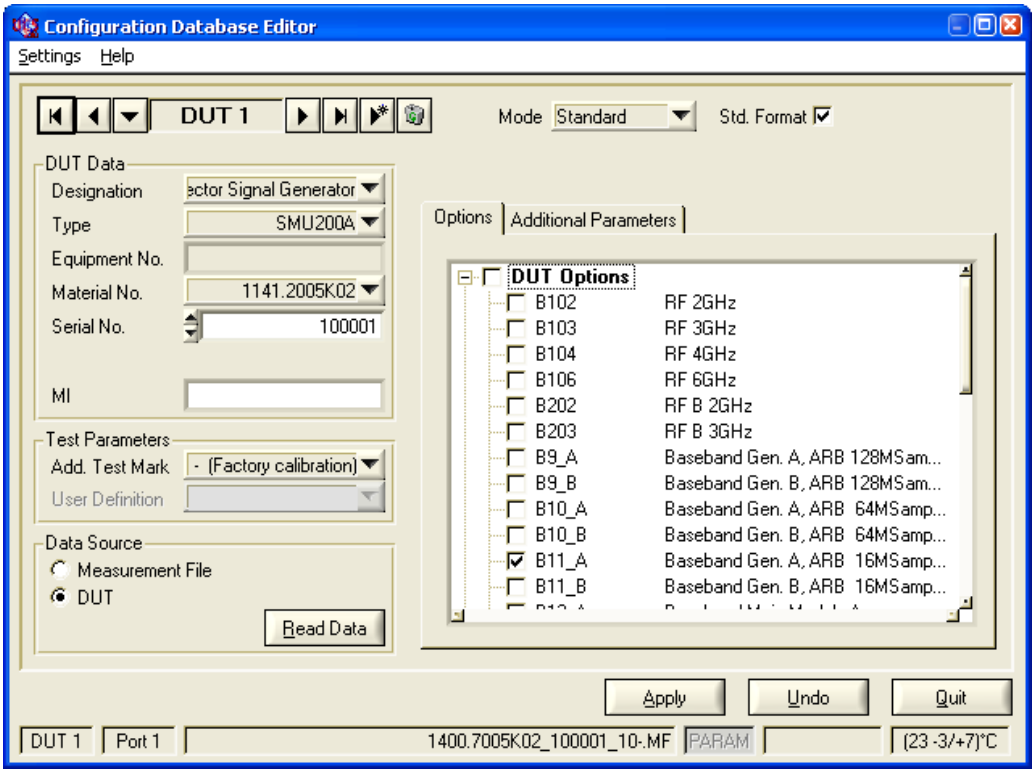


3.5 Setting up DUT and Test Configuration

Before starting a DUT test, some device and test specific data must be completed.

► Use the menu entry or click on the toolbar button marked below to open the "Configuration Database Editor".



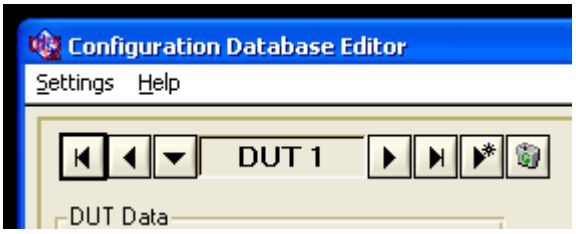


TheTM G5 provides the ability to work with several DUT settings in parallel. This is necessary for using the UCS system together with a scanner option.

For normal usage it is recommended to work with only one DUT setting.

So in normal case the DUT selection is not needed and the default selected DUT "Device 1" can remain selected.

Navigating between the registered devices see section 3.3.2 "Navigation Bar" [p. 24].



Registering and Deleting a device see section 4.3.1 "Multiple Device Testing Mode" [p. 131].

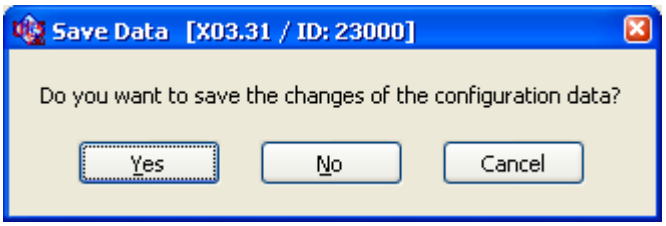
► Use the "Apply" button to apply the DUT and test configuration data.

The "Apply" button will be active only if the DUT and test configuration data has been modified.

► Use the "Undo" button to undo the DUT and test configuration data modifications.

The "Undo" button will be active only if the DUT and test configuration data has been modified.

► Use the "Quit" button to close the "Configuration Database Editor". If the DUT and test configuration data has been modified a popup will appear to apply or discard the new data.

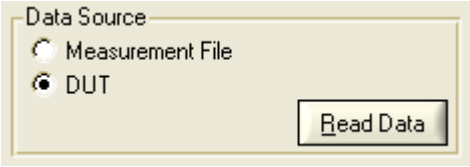


To avoid this confirmation popup select the "Automatic Apply" option (see section 5.2 "Configuration Database Editor Options" [p. 168]).

3.5.1 Filling in DUT specific Data

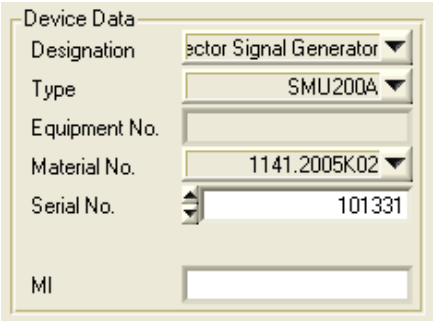
It is important to complete this step before starting a DUT test. The selected serial number must match with the connected DUT. Failure to complete, will result in the generation of a warning message and the tests procedure will not run.

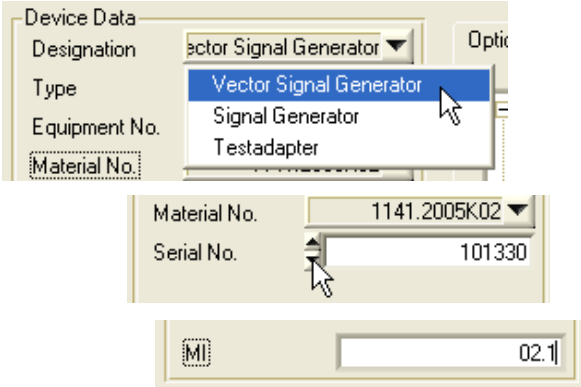
► If the DUT is connected to the test system, the DUT specific data may be read directly from the DUT and filled in automatically to the correct fields. For this purpose, select the "DUT" button and click on "Read Data".



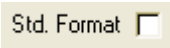
► If a measurement file exists for the DUT, the DUT specific data can be read from the measurement file and filled automatically to the correct fields. For this purpose, select the "Measurement File" button and click on "Read Data".

► To set the DUT specific data manually, use the input controls within the "Device Data" section. Several input procedures are available depending on the Test Program. Lists, numeric controls and text boxes are used to define the DUT specific data.

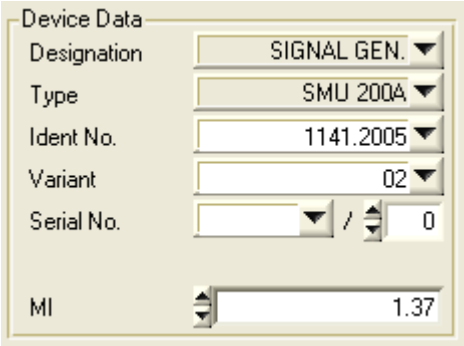




► Use the "Standard Format" checkbox to toggle the device data format.



If the checkbox is de-activated, following device data are required:

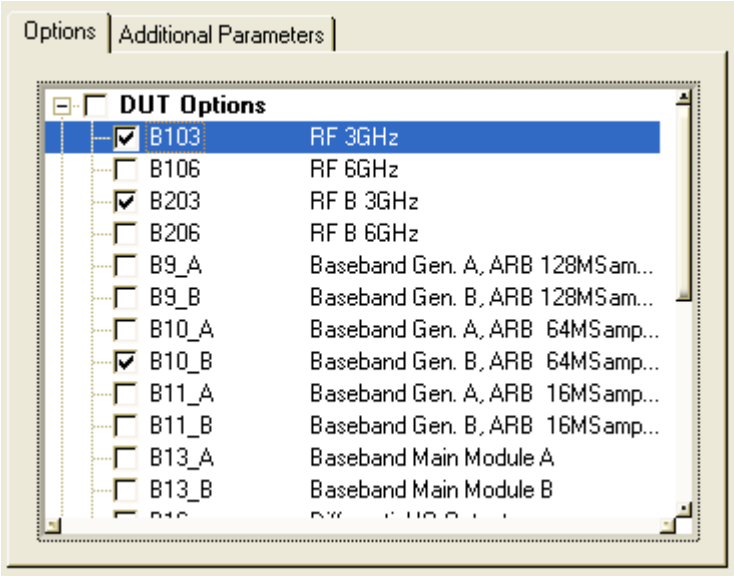


This device data format style is called the old style.

Generally, the device data are required in standard format.

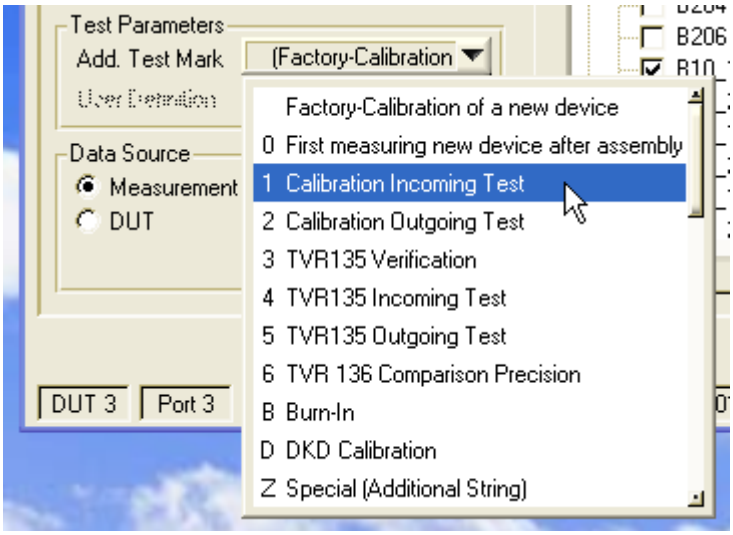
The visibility of the checkbox depends on the Test Program.

► The DUT options are read in and set in the panel below during the "Read Data" sequence. Check the DUT options and select or deselect options where necessary.



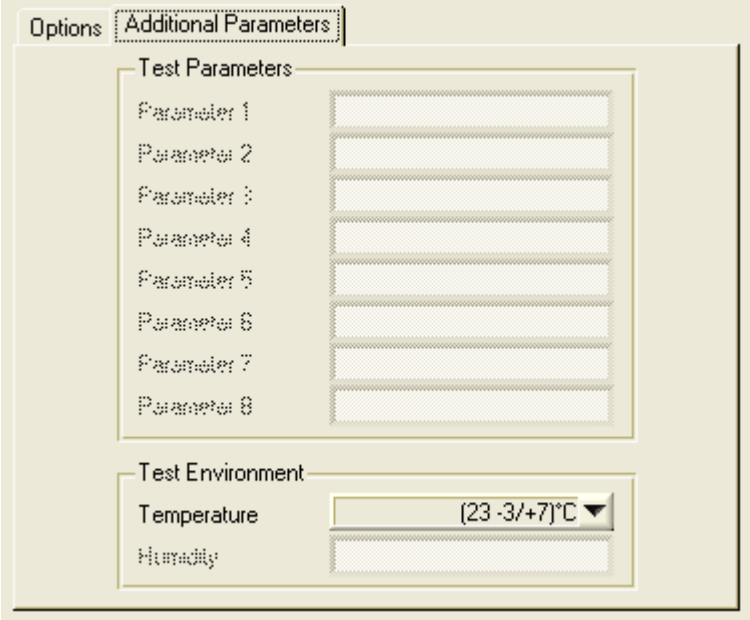
3.5.2 Filling in Test specific Data

► Select the additional test mark which identify the nature of test in more detail. The available additional test marks depend on the current Test System Mode (see section 4.11 "Test System Mode" [p. 148]).



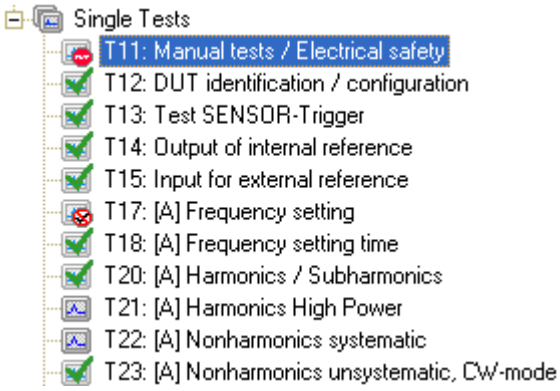
Using extended features see section 4.1 "Using the Additional Test Mark" [p. 126].

For some special tests it may be necessary to give additional test parameters and/or change the test environment settings for temperature and humidity.



3.6 Tests and Test Sequences

A complete test of a DUT consists of several separate tests. The single tests are the smallest executable parts of a complete DUT test sequence.



Single tests can be grouped and performed in different test sequences.

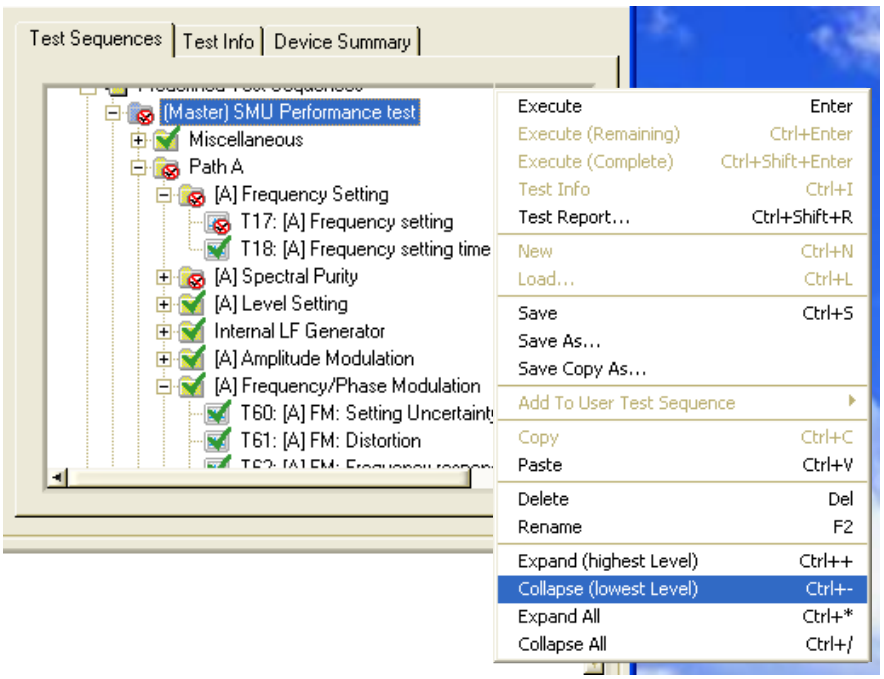
3.6.1 Predefined Test Sequences

The test of a DUT is done by performing a certain predefined test sequence. Normally the Master Test Sequence (see section 3.7.1 "Performing the Master Test Sequence" [p. 54]) which exists for every DUT type. This sequence contains all of the tests which can be performed automatically and without user intervention.

The different tests of a test sequence are grouped in a tree structure and can contain several subgroups.

► Use the left and right arrow key, respectively, to expand and collapse a tests sequence.

► Right click on the test sequence tree and use the context menu to expand and collapse all test sequences.



In addition to the automatic tests of the Master Test Sequence there are often some tests which require user intervention. Typical example is the VSWR measurement, where a coupler has to be connected to the DUT output port directly.

These manual tests are grouped together in the Master Test Sequence Appendix (see section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]).

3.6.2 User defined Test Sequences

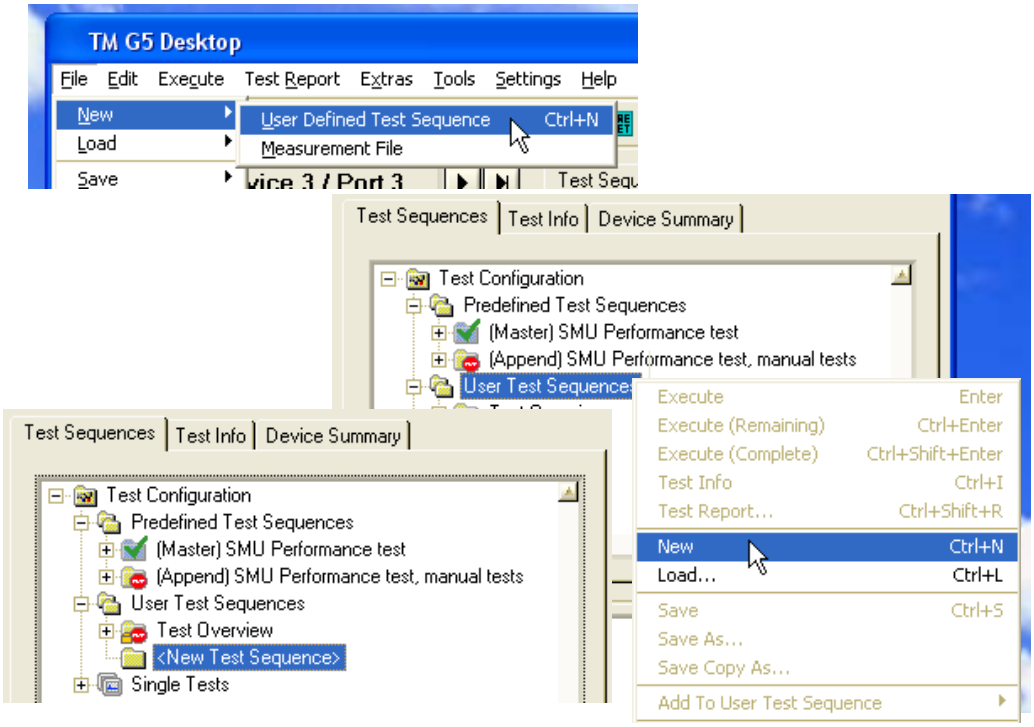
Parts of the Master Test Sequence or a test of the Single Test folder can be taken to define a special test sequence, the so-called "User Test Sequence". This could be helpful if a customer wants only a limited part of the overall sequence tested. Creating a short goods incoming test sequence to determine the status of a device is an obvious possibility.

The "Test Overview Test Sequence" (see section 3.7.3 "Performing the Test Overview Test Sequence" [p. 55]) will be created automatically and cannot be modified by the User. This test sequence contains all not passed tests of the "Master Test Sequence" (see section 3.7.1 "Performing the Master Test Sequence" [p. 54]) and the "Master Test Sequence Appendix" (see section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]).

The visibility of the folder "Single Tests" is controlled by the Test Program.

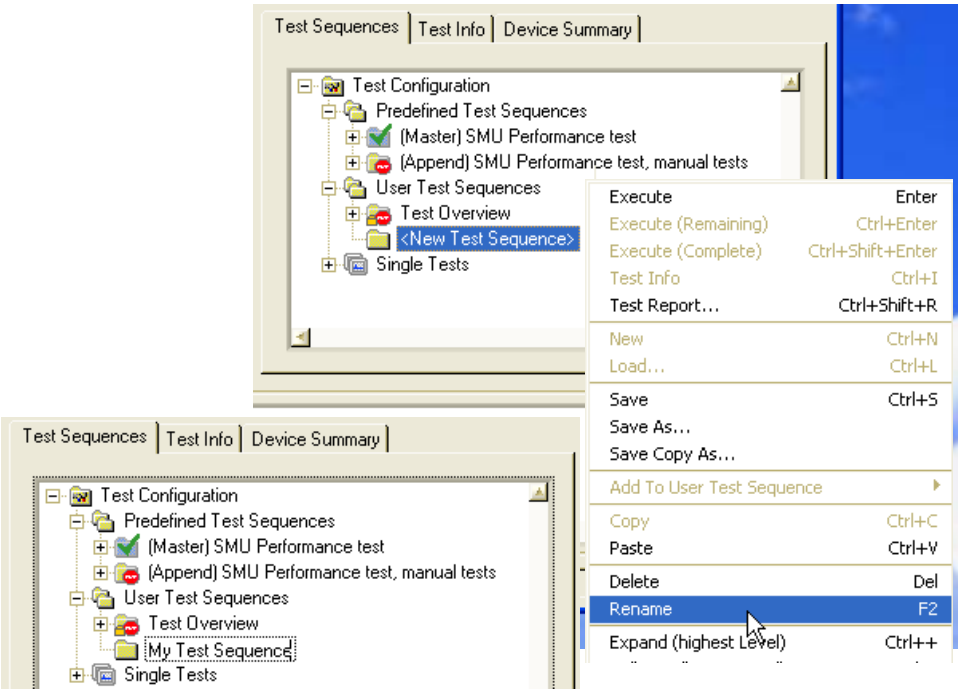
Create

► Use the "New" command of the menu bar to create a user defined test sequence. Alternatively, right click on the folder User Test Sequences within the test sequence tree and use the "New" command from the context menu. The initial name of a user defined test sequence is <New Test Sequence>.



Rename

► Right click on a user defined test sequence and use the "Rename" command from the context menu to rename a user defined test sequence.



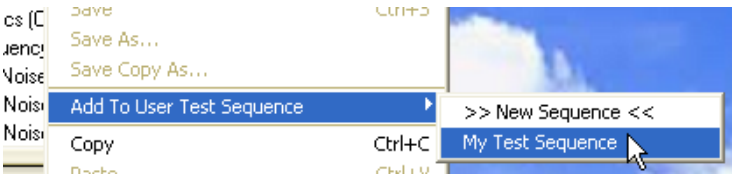
Add On

You may add tests to a User Test Sequence in different ways. But only test sequences and tests of the folders "Predefined Test Sequence" and "Single Tests" can be added.

► Use the copy (Ctrl+C) and paste (Ctrl+V) shortcuts like in Windows Explorer.

► Use the "Copy" and "Paste" command from the context menu like in Windows Explorer.

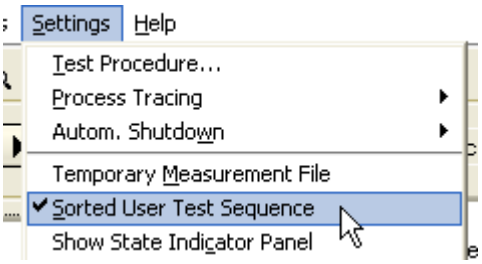
► Use the "Add To User Test Sequence" command from the context menu. The currently selected test sequences and tests of the test sequence tree are added to the chosen user defined test sequence. If the Item ">> New Sequence <<" is chosen, a new user defined test sequence is created.



A multiple selection of test sequences and tests is possible.

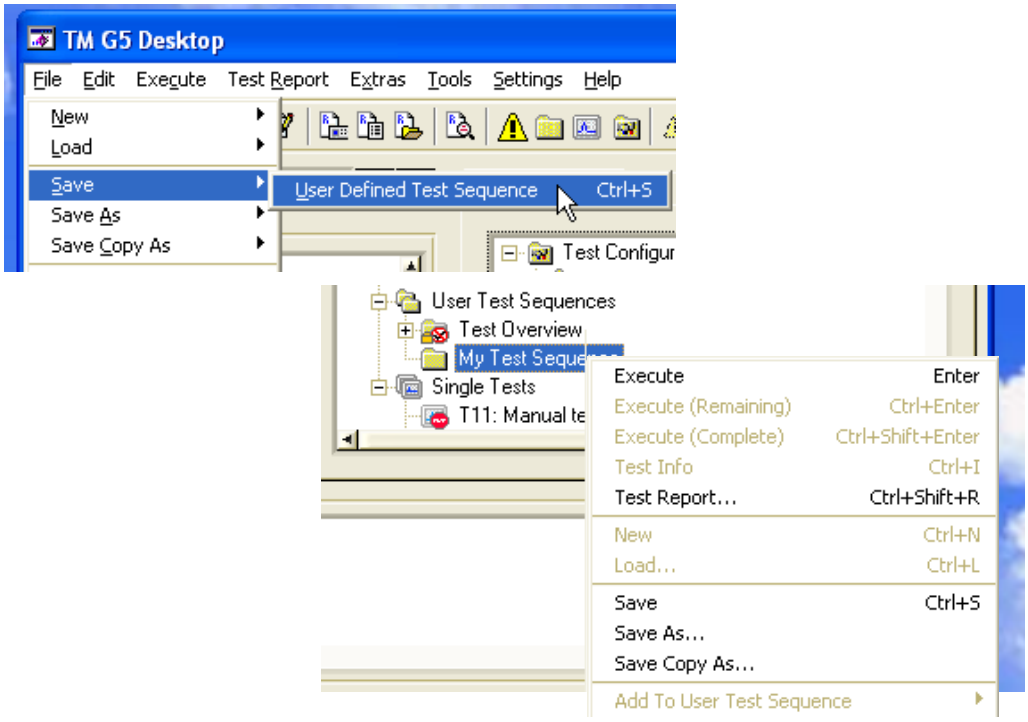
Sequences added to a user defined test sequence are resolved into its tests.

By default, tests added to a user defined test sequence are sorted by the order of appearance within the Master Test Sequence. In order to de-activate the automatic sort, uncheck the menu item "Sorted User Test Sequence".



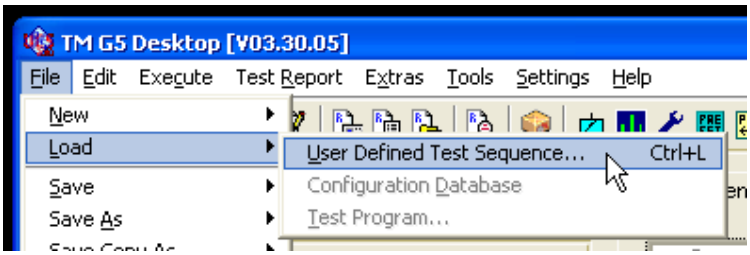
Save

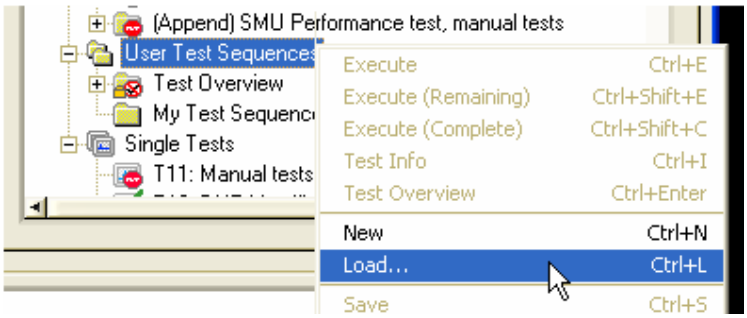
- ► Use the "Save" command of the menu bar to write a user defined test sequence to disk. Ensure that the corresponding user defined test sequence has been selected in the test sequences tree. Alternatively, right click on the user defined test sequence and use the "Save" command from the context menu.
- ► Use the "Save As" command to write a user defined test sequence to disk using a new filename which must be specified. The selected user test sequence will also be renamed within the test sequence tree.
- ► Use the "Save Copy As" command to write a user defined test sequence to disk using a new filename but without renaming the user test sequence within the test sequence tree.



Load

► Use the "Load" command of the menu bar to load a user defined test sequence from disk. Alternatively, right click on the folder "User Test Sequences" within the test sequence tree and use the "Load" command from the context menu.

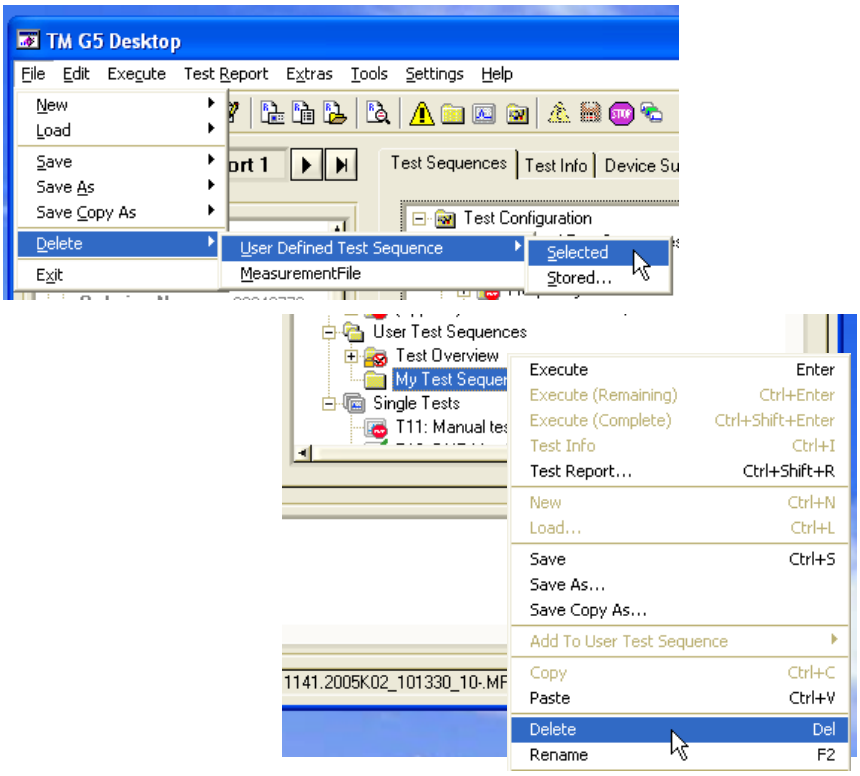




Delete

► Use the "Delete Selected" command of the menu bar to remove a user defined test sequence from the test sequence tree. However, the corresponding user defined test sequence has to be selected. Alternatively, right click on user defined test sequence and use the "Delete" command from the context menu.

► Use the "Delete Stored" command of the menu bar to delete a user defined test sequence stored on disk.



3.7 Performing a complete DUT Test

A complete DUT test normally consists of two separate test sequences:

- The "Master Test Sequence" which contains all tests which can be performed automatically without user intervention.
- The "Master Test Sequence Appendix" which contains the additional tests that need user intervention.

The "Test Overview" Test Sequence represents a test sequence which also can be used to complete a DUT test. By default, this test sequence contains the tests of the "Master Test Sequence" and the "Master Test Sequence Appendix". A test can be added to or removed from "Test Overview" Test Sequence, respectively, by means of the Test Overview panel. For further information see section 3.7.8 "Viewing the Test Overview" [p. 61].

3.7.1 Performing the Master Test Sequence

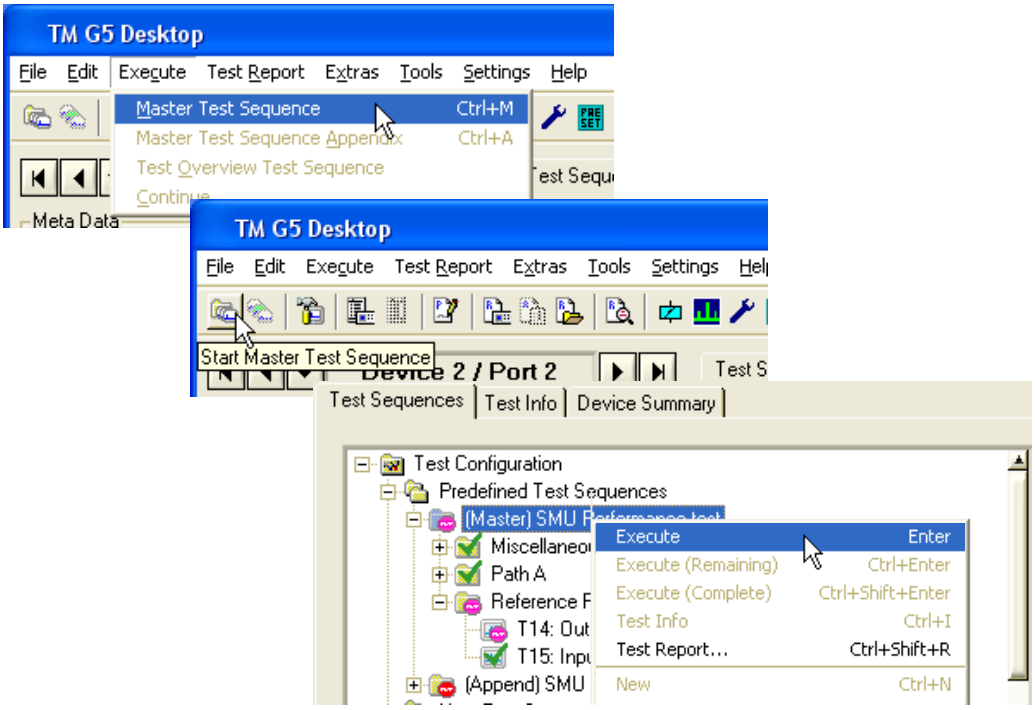
To start the Master Test Sequence:

► Use the "Master Test Sequence" command of the menu bar.

► Click the "Start Master Test Sequence" button of the toolbar.

► Right click on the "Master Test Sequence" and use the "Execute" command from the context menu.

► Left double click on the "Master Test Sequence".



3.7.2 Performing the Master Test Sequence Appendix

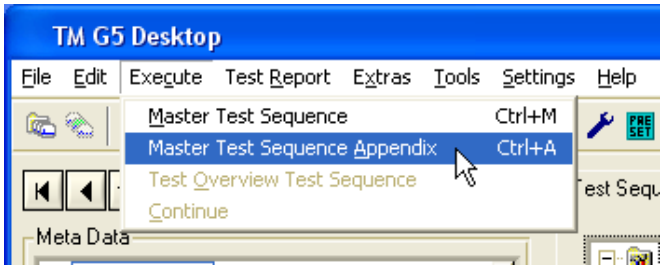
As previously described, all of the tests that require manual user interaction are collected together in one test sequence.

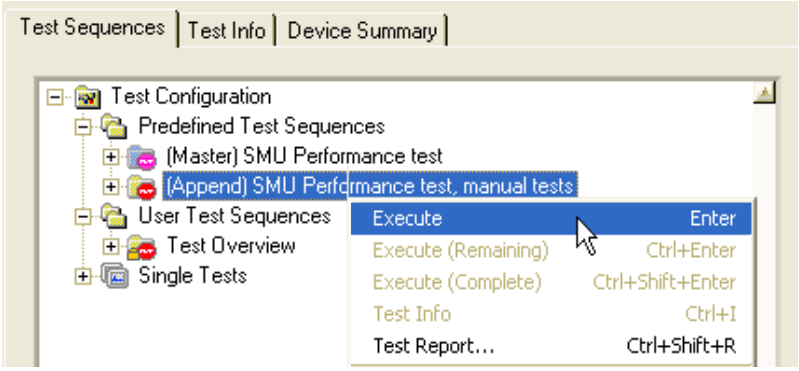
To start the "Master Test Sequence Appendix":

► Use the "Master Test Sequence Appendix" command of the menu bar.

► Right click on the "Master Test Sequence Appendix" and use the "Execute" command from the context menu.

► Left double click on the "Master Test Sequence Appendix".



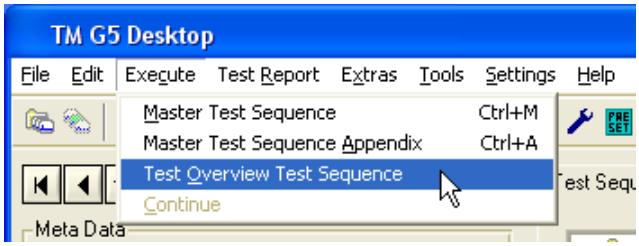


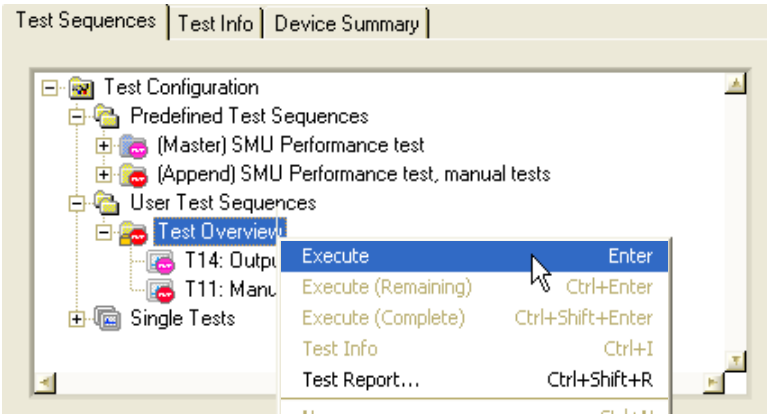
If user intervention is necessary, a popup will appear containing a detailed description of what to do.

3.7.3 Performing the Test Overview Test Sequence

To start the "Test Overview Test Sequence":

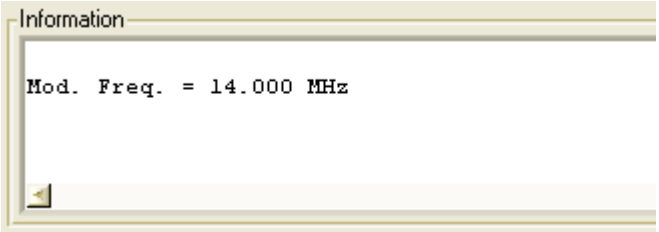
- ► Use the "Test Overview Test Sequence" command of the menu bar.
- ► Right click on the "Test Overview Test Sequence" and use the "Execute" command from the context menu.
- ► Left double click on the "Test Overview Test Sequence".



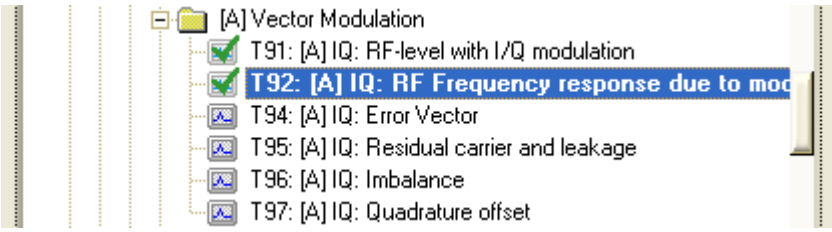


3.7.4 Information about the executed Test

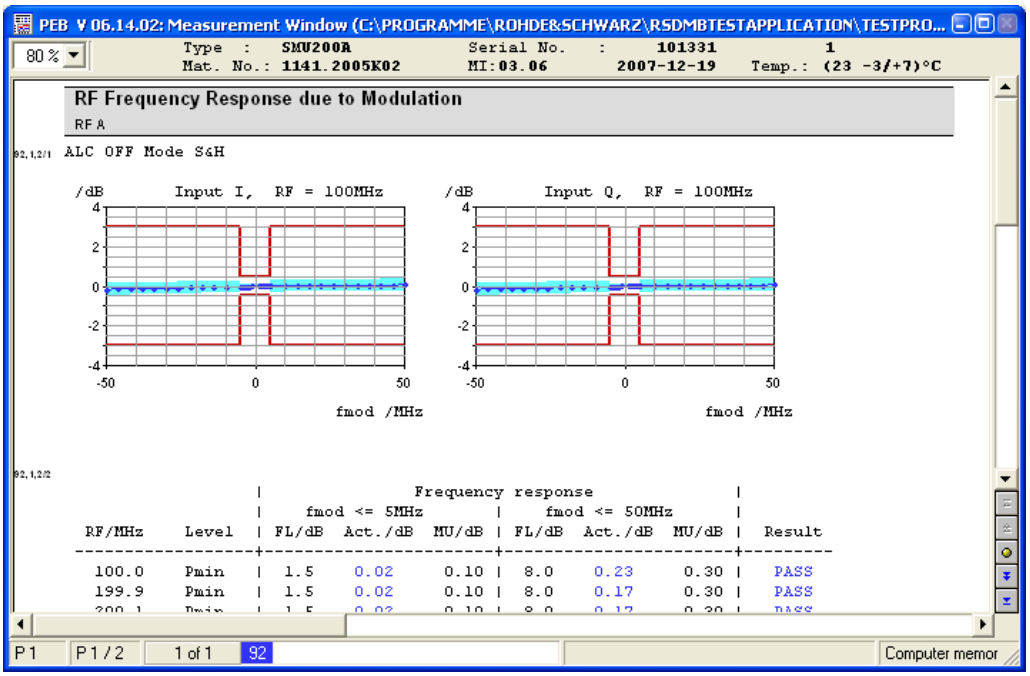
Once the test sequence has started, the individual tests will be executed sequentially. The information part of theTM G5 Desktop shows the current active test and displays some test information.



The current active test is highlighted in the Test Sequences Tab (see section 3.3.4.1 "Test Sequences Tab" [p. 26]).



The measurement results are simultaneously written to the Test Report Manager and displayed in the "Measurement Window" (see section 3.13 "Measurement Window" [p. 95]). When this panel is brought to the top, the test progress and the current measurement results can be seen.



3.7.5 Information about the Test Result State

Single icons within the "Test Sequences" Tab (see section 3.3.4.1 "Test Sequences Tab" [p. 26]), "Test Info" Tab (see section 3.3.4.2 "Test Info Tab" [p. 28]) and "Device Summary" Tab (see section 3.3.4.3 "Device Summary Tab" [p. 30]) are used to display the current test state. Each test point state is evaluated and the relevant icon is updated immediately.

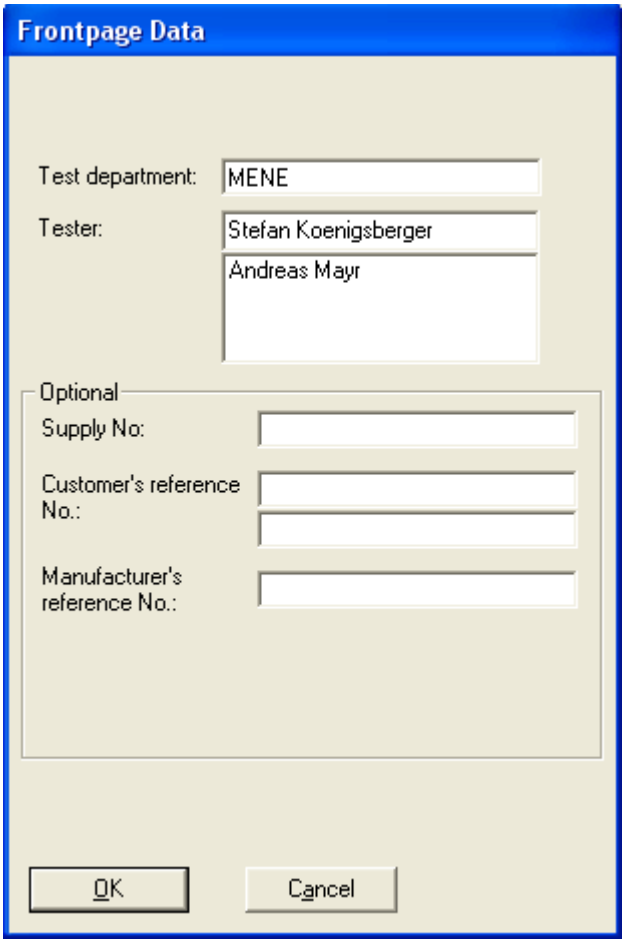
For description of the terms and abbreviations regarding measurement result see section 3.11.1 "Terms and Abbreviations in Test Reports" [p. 71].

3.7.6 Filling in Test Report Front Page Data

Normally after a test sequence has been completed, the next step is to check the "Test Overview" (see section 3.7.8 "Viewing the Test Overview" [p. 61]).

Every time the "Test Overview" is opened, the presence of the "Test Report Front Page Data" is checked. As this data is part of the Customer Test Report it should be available before a Test Report is printed. Therefore, there is an automatic query routine which checks that the data is present.

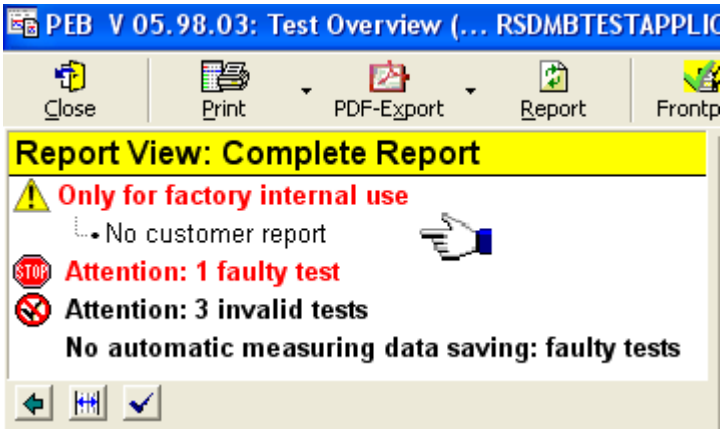
While this data is not complete, a popup will request the information:



Fill in the fields for "Test department" and "Tester" to make it available for the Test Report. The data entered in these fields will be stored to the hard disk and will be used for the next query.

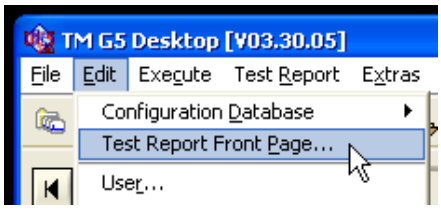
The fields "Supply No.", "Customer’s reference No." and "Manufacturer’s reference No." are optional and may be left empty if not needed.

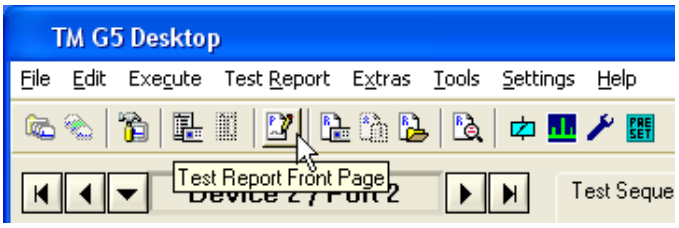
If the "Test Report Front Page Data" entry is canceled, the expected data is missing from the report, a watermark "Only for factory internal use" will be printed on the report.



To enter the Test Report Front Page Data without viewing the "Test Overview" proceed as follows:

1. Use the "Test Report Front Page" command of the menu bar or "Test Report Front Page" button of the toolbar to open the "Test Report Front Page Data" dialog.





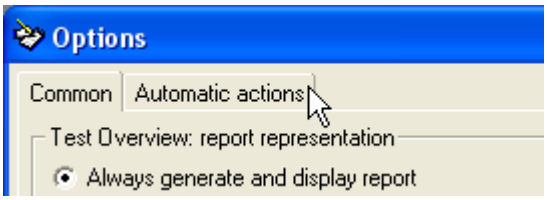
2. Fill in the "Test Report Front Page Data" as described above.

3.7.7 Automatic Test Report Front Page Data Query

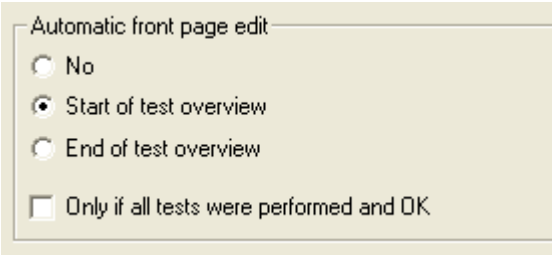
The timing of the automatic Front Page Data edit query can be modified as preferred. Settings are made by default for the standard usage. These settings can be modified if necessary:

1. Open any Test Report (see section 3.11 "Handling of Test Reports" [p. 71]).
2. Click the "Settings" button of the "Test Report" toolbar to open the settings menu.

3. Select the tab "Automation actions".



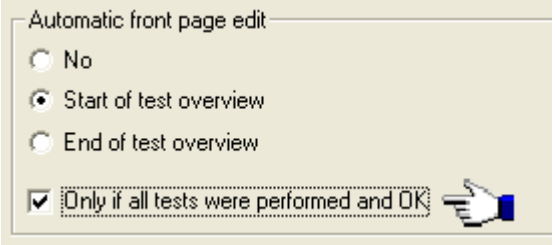
By default the setting is as follows:



This will make the "Test Report Front Page Data" dialog pop up every time a test overview is opened, regardless of the status of the performed tests. For normal usage, where a whole DUT Test Sequence has been completed before opening the Test Overview, this should be the default as completing the "Test Report Front Page Data" is essential.

It is also possible to cancel the automatic query after closing the "Test Overview".

For Outgoing Tests where normally all of the required tests have been performed and are PASS it might be helpful to activate the following option:

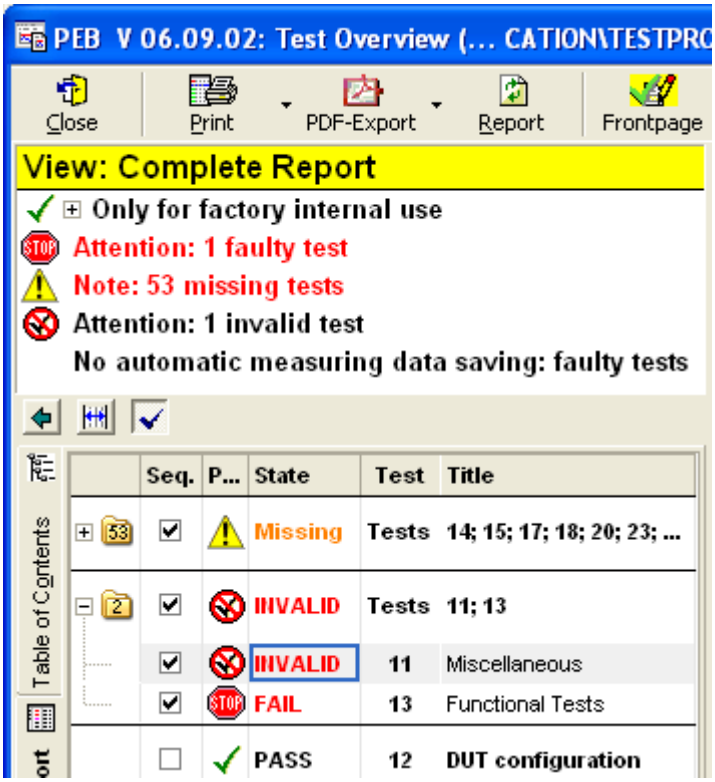


The "Test Report Front Page Data" dialog will now only pop up if a DUT test sequence has been completed and found as PASS.

3.7.8 Viewing the Test Overview

Once a test has been completed, the test result state is displayed in the "Test Sequences" Tab as described in section 3.7.5 "Information about the Test Result State" [p. 57].

The "Test Overview" panel is used to take a closer look at the test result state. This panel lists all test contained in the "Master Test Sequence" and "Master Test Sequence Appendix" (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]).



All missing, aborted, invalid, failed and UGB tests are collected together at the top of the list and give a quick overview of the tests which may have to be repeated.

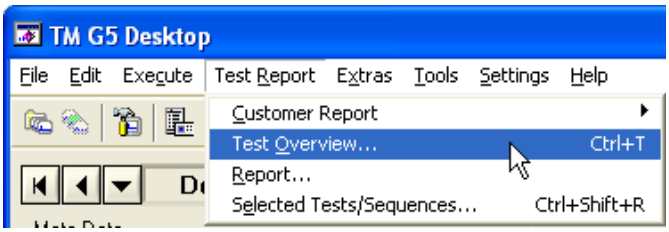
The missing tests, the aborted, invalid, failed and UGB tests and the passed tests are collected in folders (Exception: only one test of the related category is available). The number of the tests that are grouped is written on the folder icon. Normally, the folder test result state represents the state of its worst test.

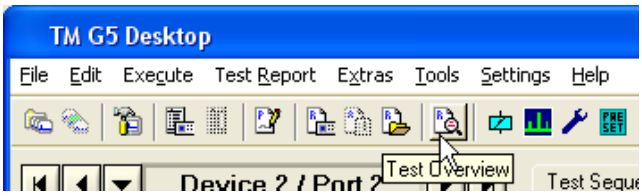
► Left click on the minus sign or use the RETURN key to expand a folder.

► Left click on the plus sign or use the RETURN key to collapse a folder.

To display the "Test Overview" proceed as follows:

► Use the Test "Overview command" of the menu bar or "Test Overview" button of the toolbar to open the "Test Overview".





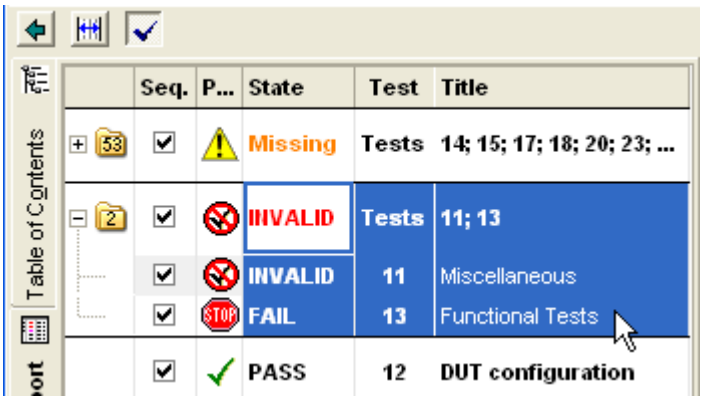
The "Test Overview" panel automatically opens after execution of the "Master Test Sequence", the "Master Test Sequence Appendix" or the "Test Overview" Test Sequence.

3.7.9 Repeating Tests by using the Test Overview

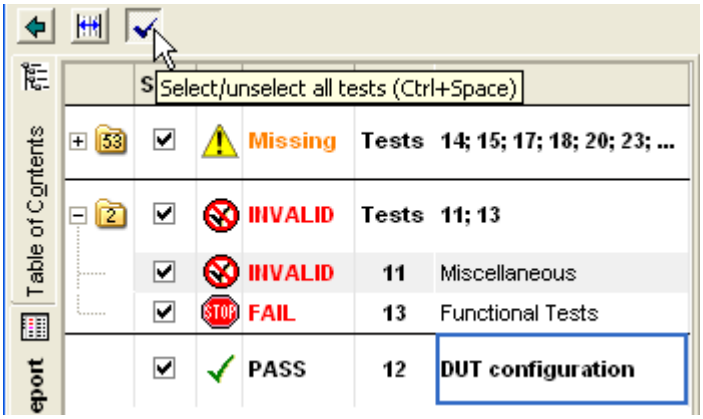
The "Test Overview" provides the opportunity to select tests for execution after leaving the "Test Overview". For that purpose, the test check boxes have to be activated.

By default all missing, aborted, invalid, failed and UGB tests are selected.

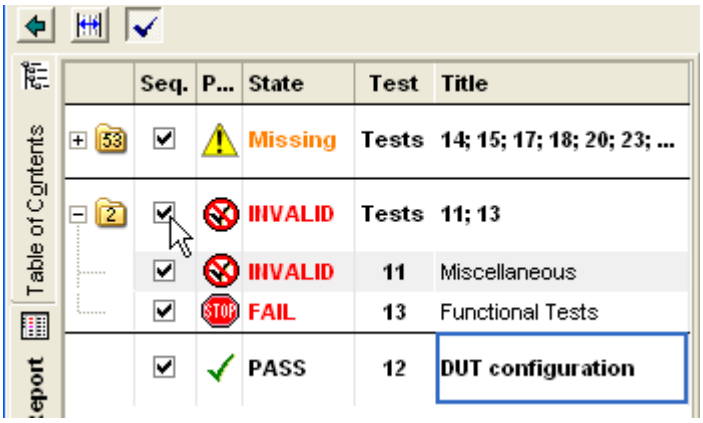
► Use the SPACE key to alter the check box state of the selected tests. Alternatively, alter the check box state by left clicking on the check box.



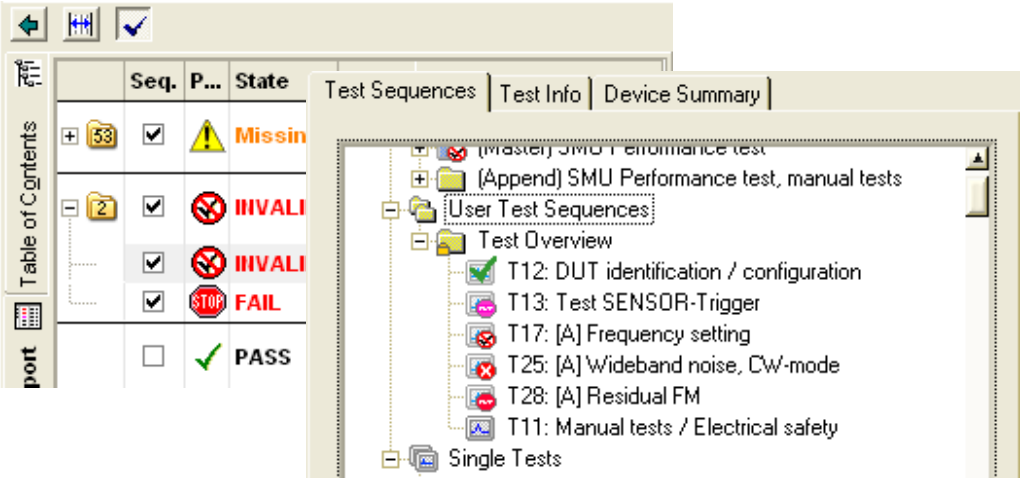
► Use the check button on the top of the test list to alter the check box state of all tests.



► Select a folder and use the SPACE key to alter the check box state of related tests. Alternatively, alter the check box state by left clicking on the folder check box.



After quitting the "Test Overview" panel, all the selected tests will be found in the "Test Overview" Test Sequence.



► To run the selected tests, execute the "Test Overview" Sequence. For further information see section 3.7.3 "Performing the Test Overview Test Sequence" [p. 55].

3.8 Performing a Single Test

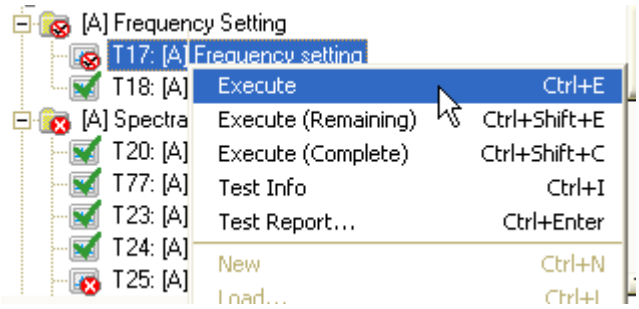
Sometimes it is necessary to repeat a single test from a previously executed test sequence.

3.8.1 Using theTM G5 Desktop

To start a test:

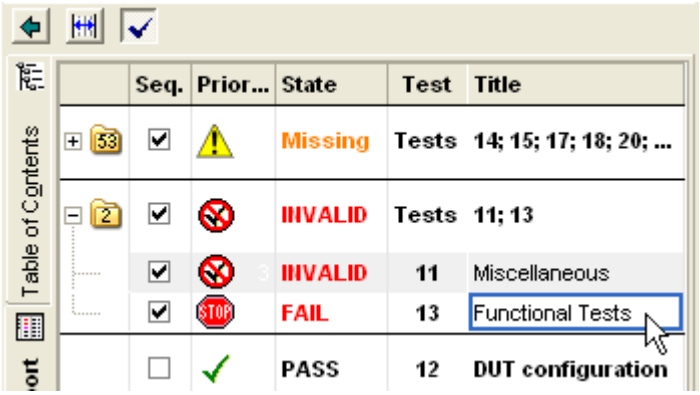
► Right click on the test and use the "Execute" command from the context menu.

► Left double click on the test.



3.8.2 Using the Test Overview

► A left double click on one of the corresponding test attributes, e.g. test title, will start the execution.



The Test Overview will remain open after the test has been completed.

This feature is only available if selected in the "Test Report Option" dialog. For further information see section 5.1 "Test Report Options" [p. 160].

3.9 Interrupting, aborting and continuing a Test Sequence

3.9.1 Interrupting and Aborting a Test Sequence

For interrupting and aborting a running test sequence the "Interrupt Panel" is used (see section 3.3.7 "Interrupt Panel" [p. 34]).

► Use one of the termination buttons which are available during a running test sequence.

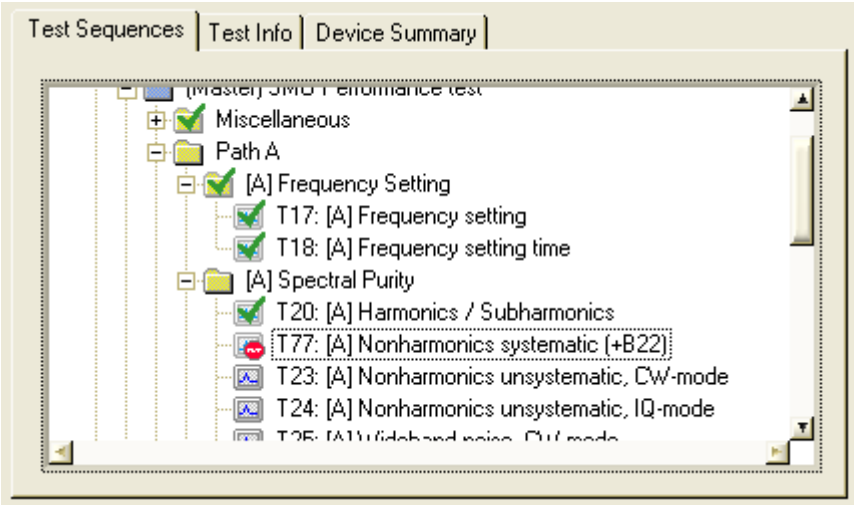
The "Terminate" button completely aborts the execution of the current test sequence.

The "Interrupt" button pauses the execution of the current test

The "Next Test" button terminates the current test, but will allow execution of the rest of the test sequence by starting the next test

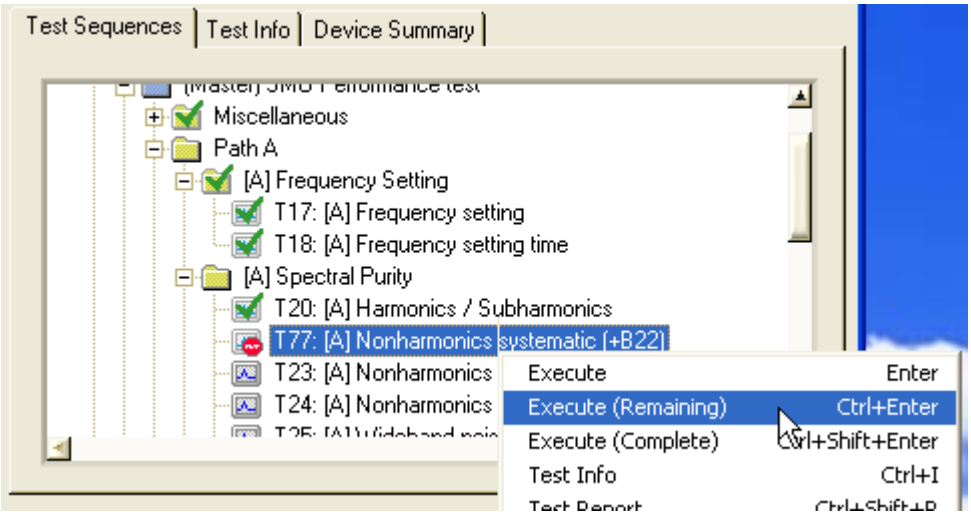
3.9.2 Continuing a previously aborted Test Sequence

If a test sequence has been aborted, some tests will remain untested, as can be seen in the test sequence overview below. In this example the test `T20: [A] Harmonics / Subharmonics` was the last completed test. During the test `T77: [A] Nonharmonics systematic (+B22)` the execution was aborted. The aborted test is marked with a stop sign.



3.9.3 Continuing a Test Sequence using theTM G5 Desktop

► Right click on the "Test Sequence" tab and use the "Execute (Remaining)" command from the context menu to continue a Root Test Sequence (see section 4.3.1 "Multiple Device Testing Mode (only with scanner extension)" [p. 131]), starting with the selected test or test sequence.



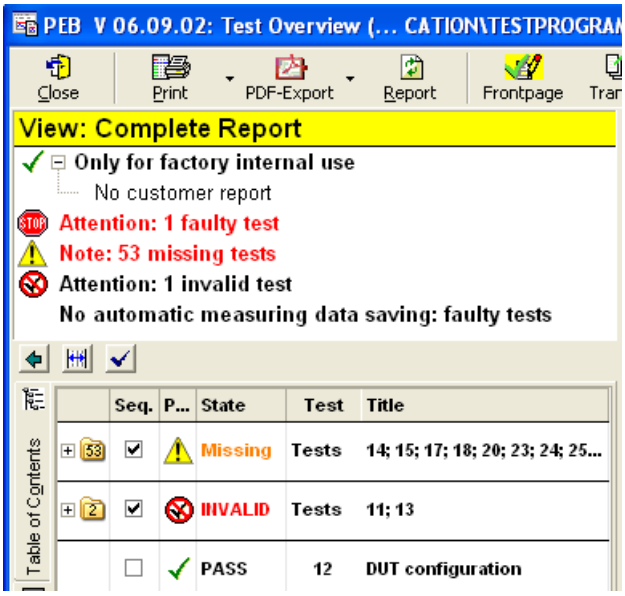
The "Execute (Complete)" command also continues a Root Test Sequence starting with the selected test or test sequence. However, if the Root Test Sequence end is reached the Root Test Sequence restarts. All tests and test sequences are executed until the previously selected test or test sequence is reached.

3.9.4 Continuing a Test Sequence using the Test Overview

This procedure is only for continuing the "Master Test Sequence" (see section 3.7 "Performing a complete DUT Test" [p. 53]).

Another possibility for continuing an aborted test sequence is to use the "Test Overview". In order to select the remaining tests for execution proceed as follows:

1. Open the "Test Overview" (see section 3.7.8 "Viewing the Test Overview" [p. 61]). The missing tests are sorted to the top of the list. All missing tests are selected by default.



Tests found to be UGB or FAIL are also selected in the "Test Overview". If you don't want to repeat them, you have to deselect them.

2. Close the "Test Overview" and start the "Test Overview" Test Sequence (see section 3.7.3 "Performing the Test Overview Test Sequence" [p. 55] and section 3.7.9 "Repeating Tests by using the Test Overview" [p. 63]).

3.9.5 Continuing a Test Sequence after a different DUT has been loaded

If a test sequence needs to be continued but another DUT has been loaded by using the "Configuration Database Editor", the device data of the original DUT must be restored.

In order to restore the device data proceed as follows:

1. Open the "Configuration Database Editor" (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).
2. Read the device data from the related measurement file (see section 3.5.1 "Filling in DUT specific Data" [p. 44]).
3. Check all of the device data and close the input dialog.

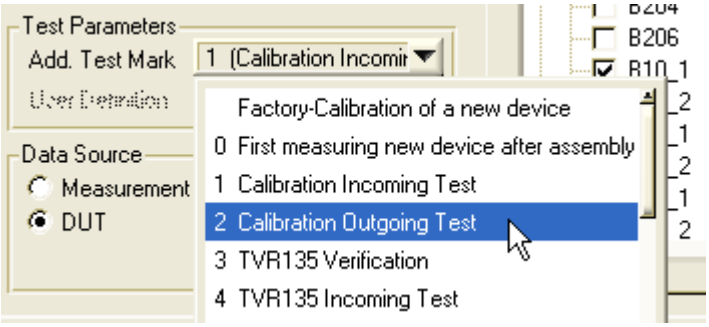
In order to continue the a test sequence proceed as described in section 3.9.3 "Continuing a Test Sequence using theTM G5 Desktop" [p. 67] and section 3.9.4 "Continuing a Test Sequence using the Test Overview" [p. 68].

3.10 Performing an Outgoing Test

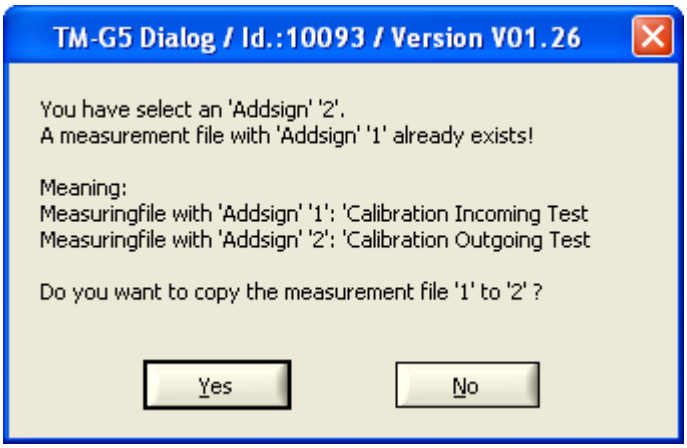
If an Incoming Test has been 100 % successful, the incoming measurement results may be used within the Outgoing Test Report also.

In order to perform an outgoing test proceed as follows:

1. Open the "Configuration Database Editor" (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).
2. Leave the Device Data unchanged, but select "Outgoing Test" as Additional Test Mark in the test parameters.



3. Close the "Configuration Database Editor". A warning popup will appear to alert an incoming measurement file already exists. Select "Yes" and the data of the existing file will be copied into a new outgoing file.



A new measurement Outgoing Test Report file is now created and stored and is available for printing.

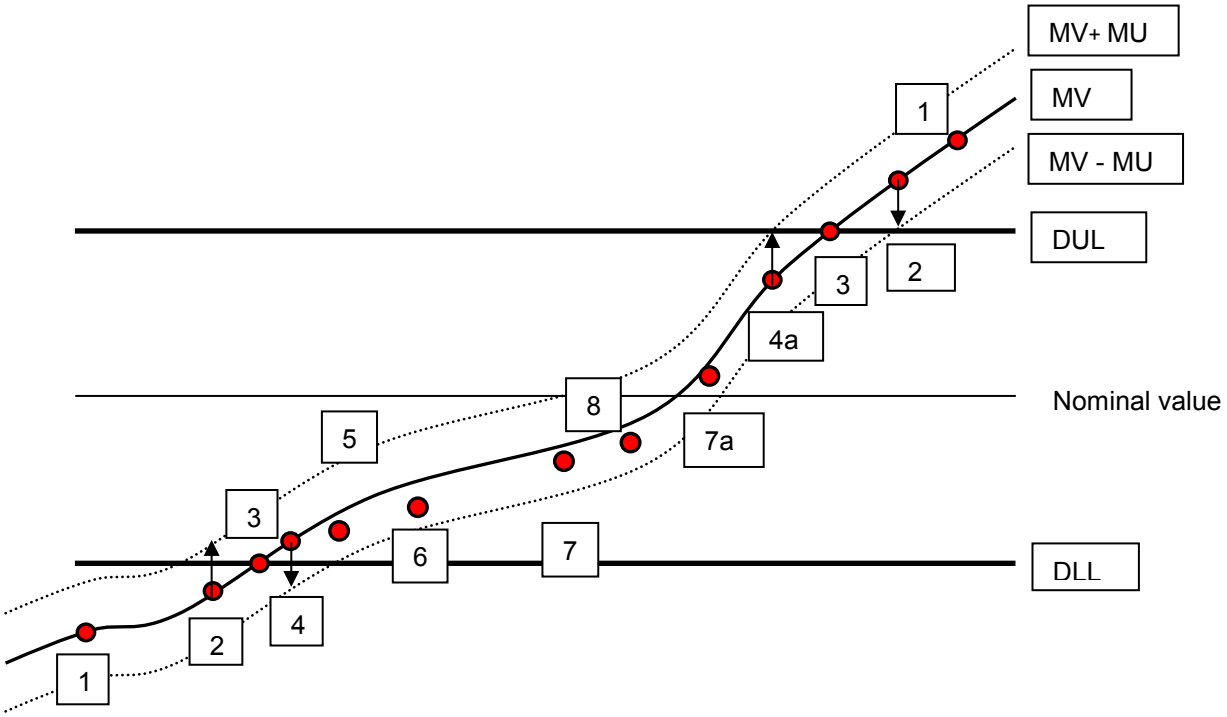
3.11 Handling of Test Reports

3.11.1 Terms and Abbreviations in Test Reports

Abbreviations:

Measured Value	MV	
Measurement Uncertainty	MU	
Datasheet Upper Limit	DUL	
Datasheet Lower Limit	DLL	
Uncertainty Guard Band	UGB	(Range from [MV – MU] to [MV + MU])

To get an overview whether the DUT meets the data sheet limits, every test result is marked either with no mark, FAIL or UGB, dependant on the measured results when compared to the expected values. The following diagram shows the conditions:

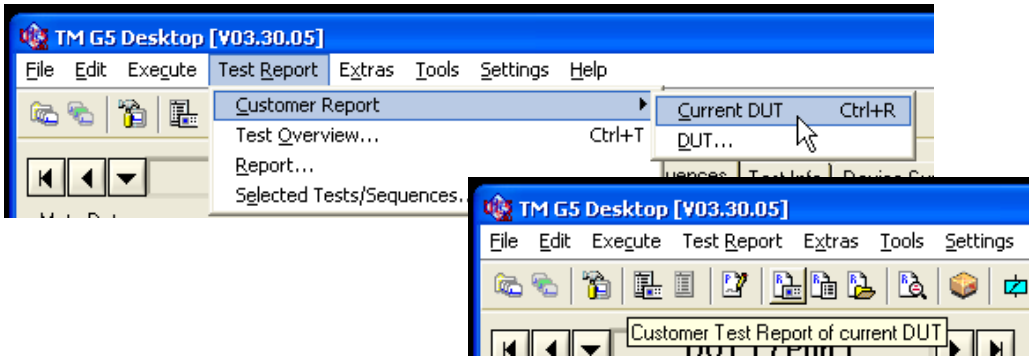


Case 1:	Measured value outside DLL / DUL	→	Test result marked with **FAIL**
Case 2:	Measured value outside DLL / DUL, but part of UGB inside DLL / DUL	→	Test result marked with **UGB**
Case 2a:	Measured value outside DLL / DUL, UGB crosses DLL / DUL	→	Test result marked with **UGB**
Case 3:	Measured value crosses DLL / DUL	→	Test result marked with **UGB**
Case 4:	Measured value inside DLL / DUL, but part of UGB outside DLL / ULL	→	Test result marked with **UGB**
Case 4a:	Measured value inside DLL / DUL, UGB crosses DLL / DUL	→	Test result marked with **UGB**
Cases 5 to 8:	Measured value inside DLL / DUL, UGB inside DLL / DUL	→	Test result is o.k., not marked

3.11.2 999999Customer Test Report of current DUT

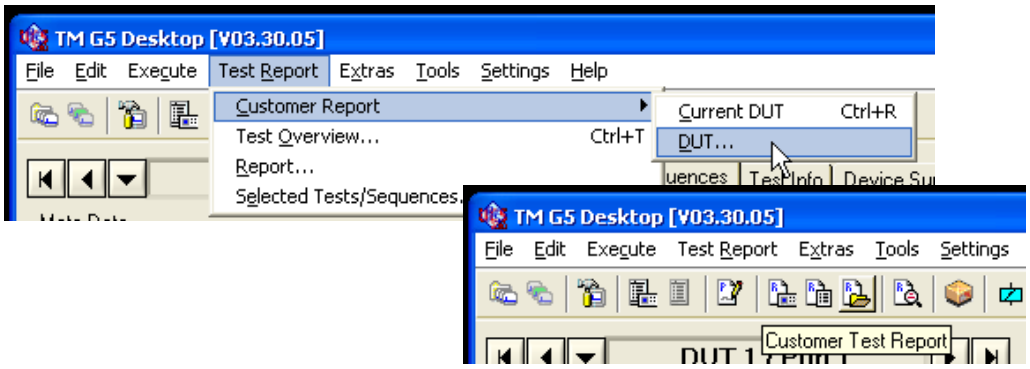
Once a test sequence or at least a single test has been executed, a Customer Test Report can be viewed.

► Use the "Current Device" command of the menu bar or "Customer Test Report of current Device" button of the toolbar to open the Customer Test Report of the current device.



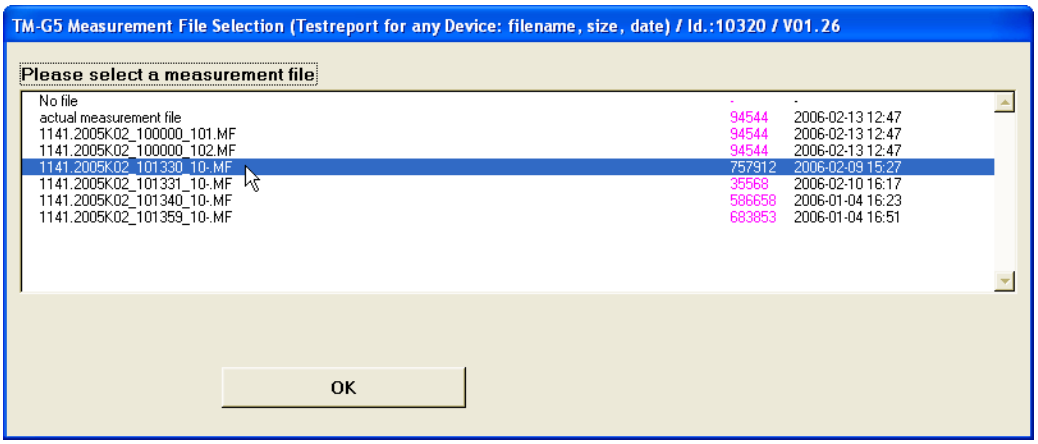
3.11.3 Customer Test Report of specific Device

1. Use the "Device" command of the menu bar or "Customer Test Report" button of the toolbar to open the Customer Test Report of a specific device.

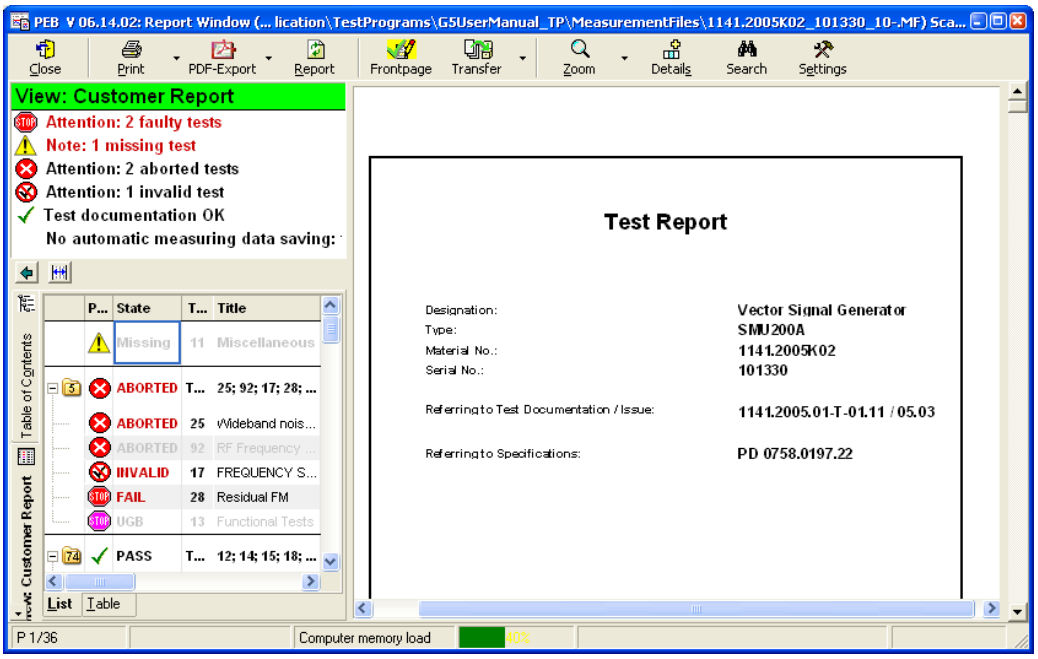


A subsequent selection window will be opened, showing all available test reports in the folder for the current device type.

2. Select the test report of interest.



3. Confirm the selection with the OK button or do a left double click on the measurement file name.



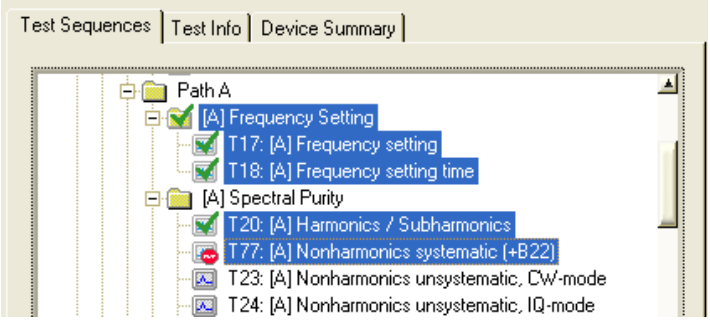
3.11.4 Test Report of selected Tests

It can take quite a long time to open the test report when the test report to be displayed contains a lot of tests. This is because all test measurement data is used to fill the test report template pages to create the complete test report.

It is also possible to display only a few tests (failures or just to confirm results) and it is quicker to simply select these tests of interest and open an individual report.

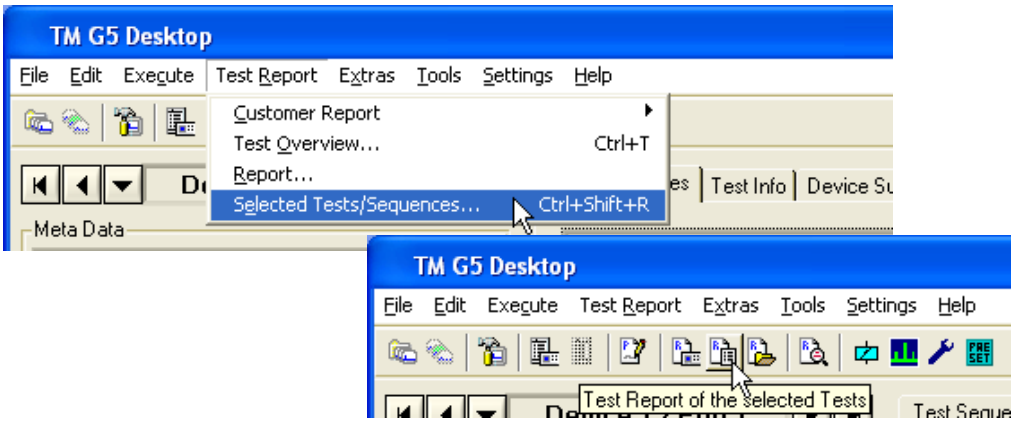
To open the individual test report proceed as follows:

1. Select the test sequences and tests to be displayed within the "Test Sequences" tab.



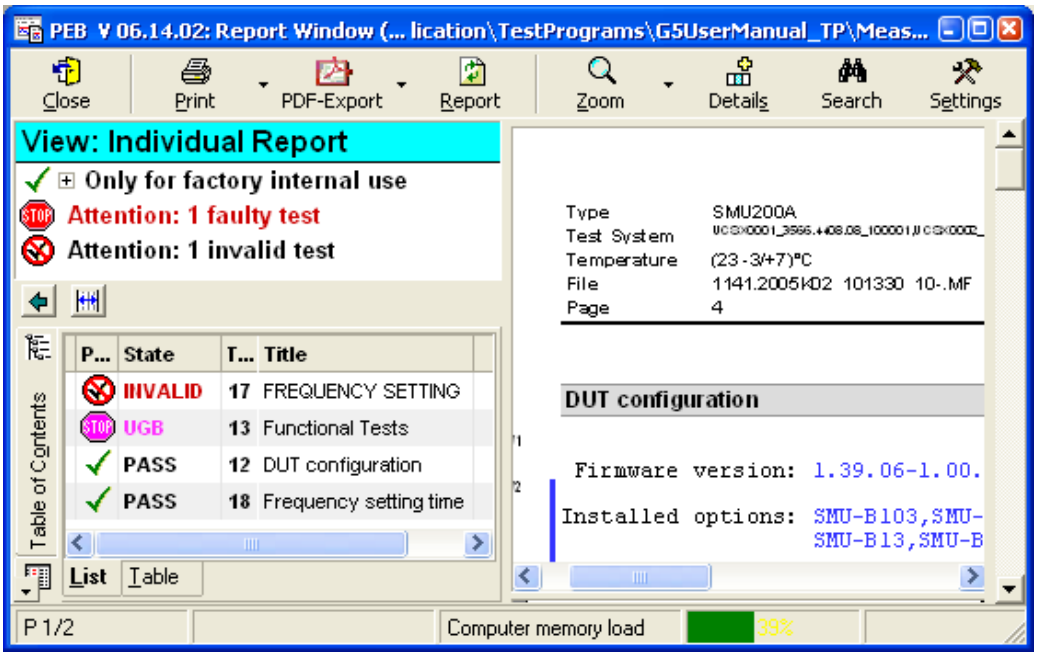
If using the mouse, hold the CTRL key pressed to select several single tests and hold the SHIFT key pressed to select a range of tests.

2. Use the "Selected Tests" command of the menu bar or the "Test Report of selected Test" button of the toolbar to open the individual test report.

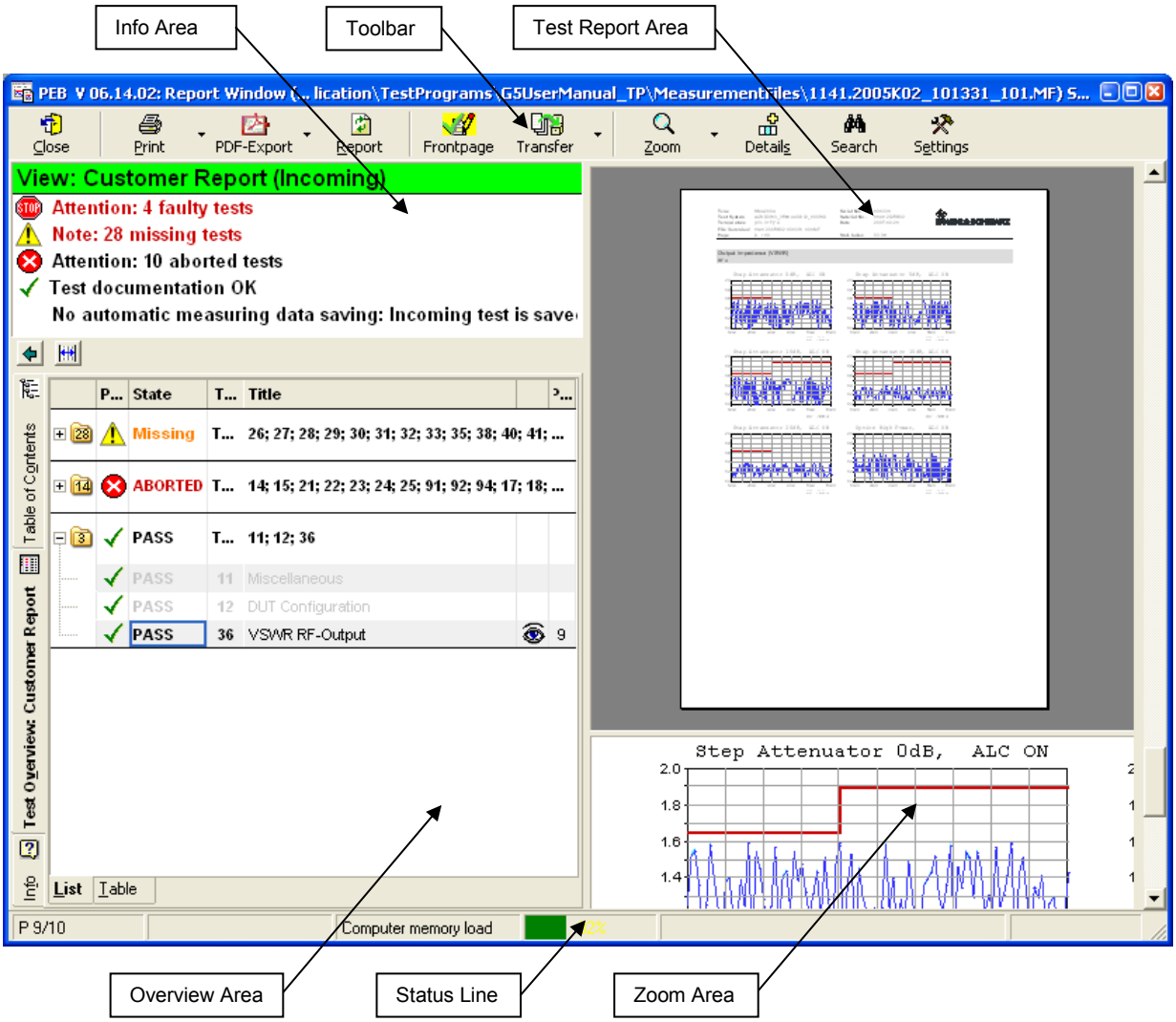


The menu bar item and the toolbar button remain dimmed until at least one test has been selected.

An individual test report will be opened, showing the selected tests only:



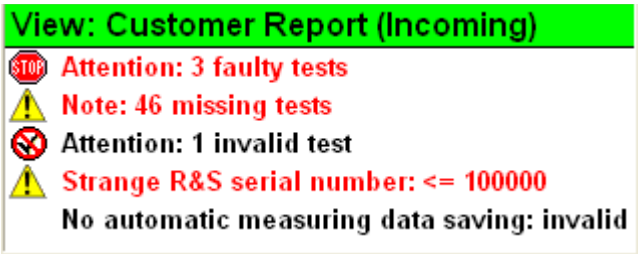
3.12 Test Report Window



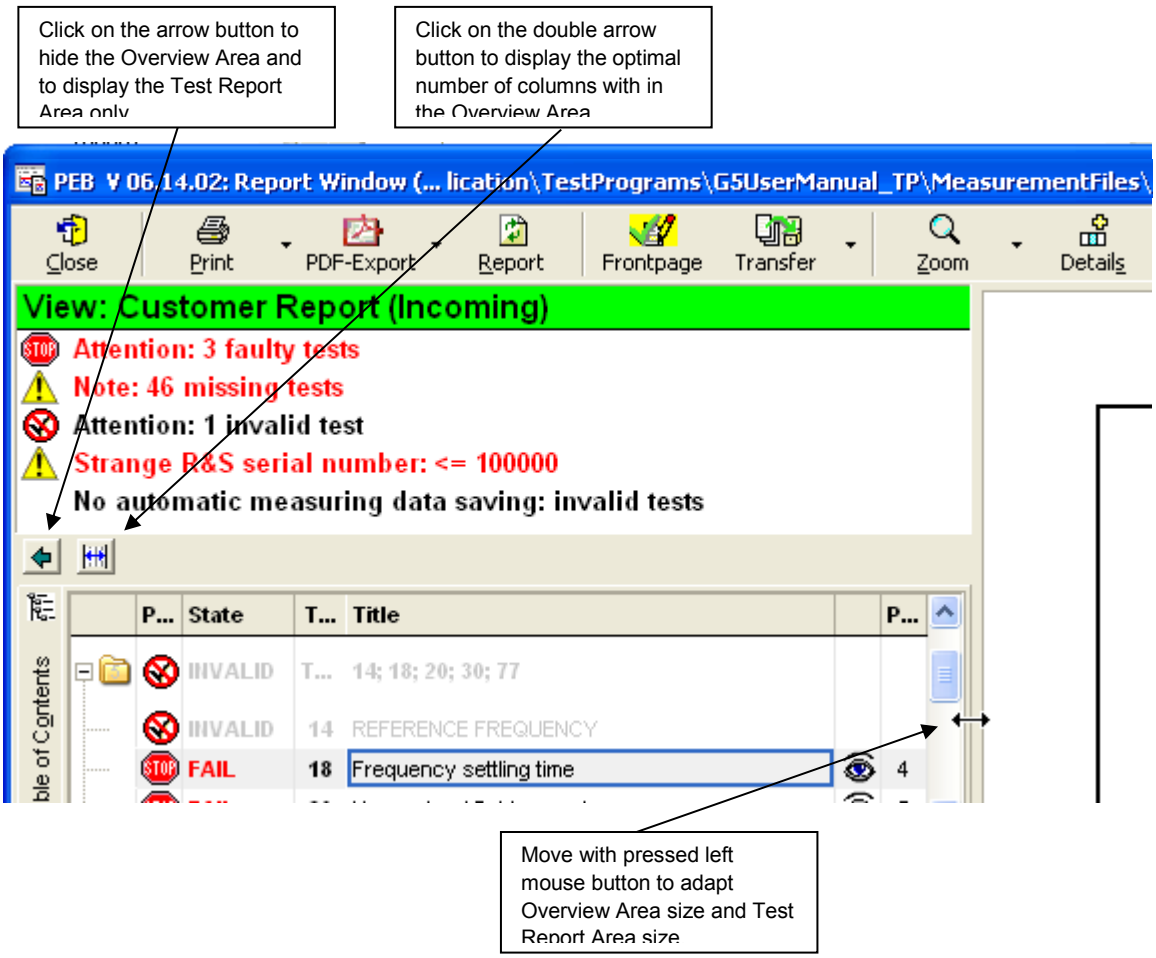
When the report window is active, theTM G5 Desktop can still be operated. But tests can only be executed after the report window has been closed with the "Close" button.

3.12.1 Info Area

The Info Area show a summary of the test report overall state, e.g. warnings will be displayed if tests are aborted, failed, missing, etc.

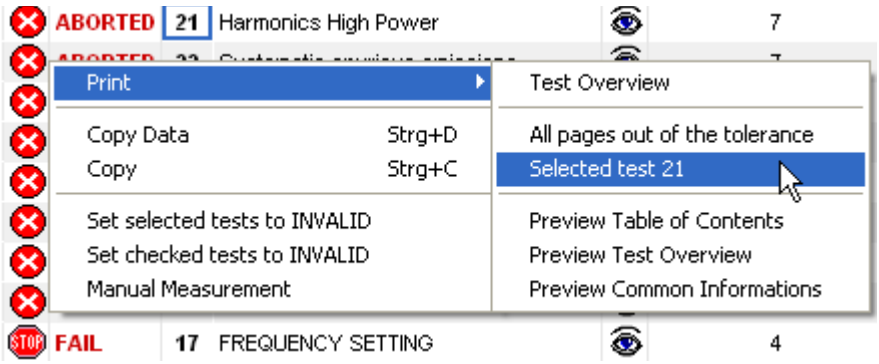


3.12.2 Overview Area



► Right click on the Overview Area and use the context menu to print the data of the Overview Area.

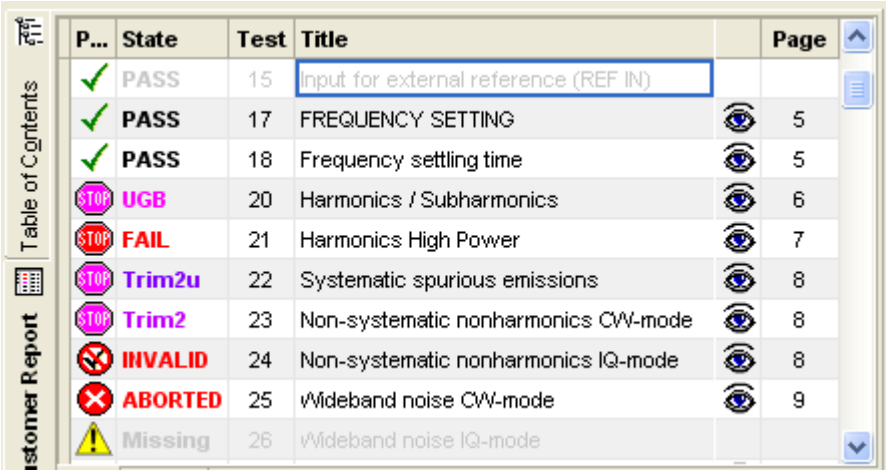
The context menu items are dynamic depend on the current displayed data of this area. For further information about the printing items see section 3.12.6.2 "Printing the Test Report" [p. 87]. Additionally, the currently selected text and the current data, e.g. data of a test, can be copied to the clipboard using the context menu.



3.12.2.1 Test Overview Tab

Using the buttons on the left border changes the contents of the Overview Area. By default the Overview Area shows the Test Overview.

► Click the "Test Overview" button to display the compact test information of the corresponding device.



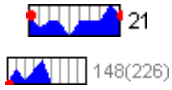
Depending on the Test Report Options and Settings (see section 5.1 "Test Report Options" [p. 160]) some of the columns might be hidden.

Grouping:		The folder icons are used to group all missing tests, all passed tests and all test with the states **UGB**, **FAIL**, **Trim2**, **Trim2u**, **INVALID** and **ABORTED**. The number within the folder icon indicates the number of tests contained by the related folder. ► A left click on the plus sign expands the folder. All containing tests are shwon and a minus sign appears. ► A left click on the minus sign collaps the folder.
Seq.:		All checked tests are contained by the Test Overview Test Sequence (see section 3.7.3 "Performing the Test Overview Test Sequence" [p. 55]).
Priority:		Test has been performed with result PASS
		Test has been performed with result FAIL

The test is normally part of the test sequence but has not been performed yet.

If a test report of an incoming test is displayed this sign indicates an UGB status.

		Test is missing
		Test has been aborted
		Test has been performed with result **UBG**, **Trim2** or **Trim2u**
		Test has been set invalid
State:		Shows the test result state. Possible states are **PASS**, **UGB**, **FAIL**, **Missing**, **Trim2**, **Trim2u**, **INVALID** and **ABORTED**

Distribution of the test points:		A standardised graphic which displays the distribution of test point results in-between the data sheet limits. The number of evaluated test points is also shown, e.g. 21 and 148. A number in parenthesis represent the total number of test points. This indicates the not all test points have been evaluated, since only the test points with an lower and upper data sheet limit can be analyzed. A red dot on the diagram border indicates that measurement values of some test points are close to the data sheet limits.
Test:		Test number
Adjustment:		Test should be checked by the user for readjustment
Title:		Title of the test
Visibility:		The eye symbol states that this test is visible in the customer report only
Page:		Page number within the Test Report

By default the missing tests are displayed first, then the aborted, invalid, failed, UGB, Trim2u, Trim2 and finally the passed.

To obtain a different sorting order click on the header of column, e.g. clicking on "Page" will sort the tests by page number. A second click on the same column will reverse the sorting order.

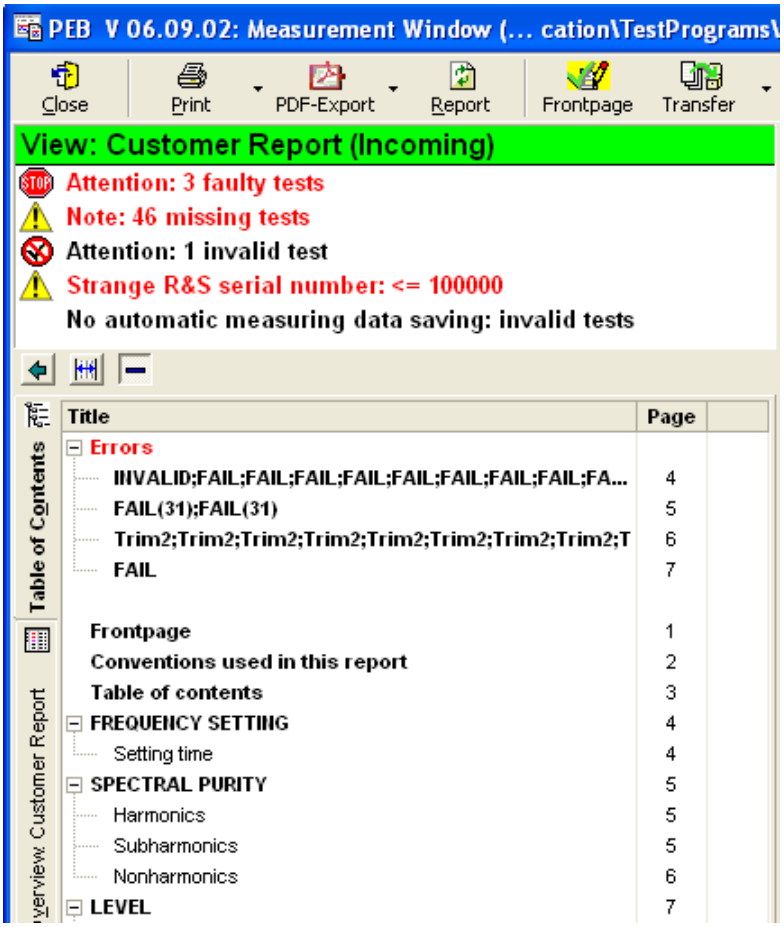
If the extended Test Overview is activated (see section 3.12.6.8 "Extended Test Overview Tab" [p. 94]) further Test Overview columns are displayed:

C:	Number of the additional chapter
Test System:	Name of the test system on which the test was performed. This might be of interest if a test was appended on different systems.
Scanner Port:	Scanner port number on which the test was performed
Date:	Date on which the last test point of the test was performed
Time:	Time on which the last test point of the test was performed
Points total:	Number of test points of the test
Points:	Number of points of the test which tolerances are checked

FAIL:	Number of failed test points of the test
UGB2:	Number of UGB2 test points of the test
UBG1:	Number of UGB1 test points of the test
Trim2:	Number of Trim2 test points of the test
Trim2u:	Number of Trim2u test points of the test
Time [min]:	Duration of the test in minutes
Temp.:	Temperature which has been existed when the test was performed
Hum.:	Humidity which has been existed when the test was performed
TM-Version:	Version of the test management software with which the test was performed
TSC-Version:	Version of the test system controller with which the test was performed
TP-Version:	Version of the Test Program with which the test was performed
DUT MI:	Modification index of the DUT
Var.:	Variant of the test template
V:	Version of the test template
SM:	Flag indicating if a selective measurement is possible

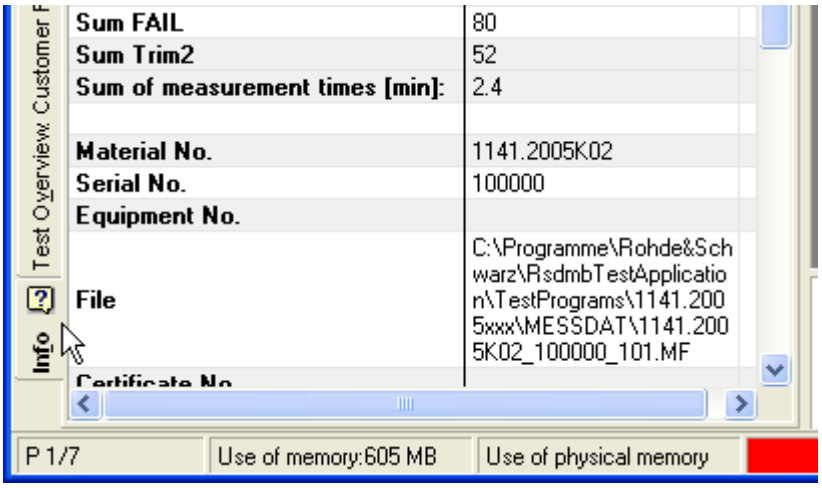
3.12.2.2 Table of Contents Tab

► Use the "Table of Contents" button on the left border of the Overview Area to display the test report table of contents.



3.12.2.3 Test Report Meta Data Tab

► Click the "Info" button on the left border of the Overview Area to display the test report meta data.



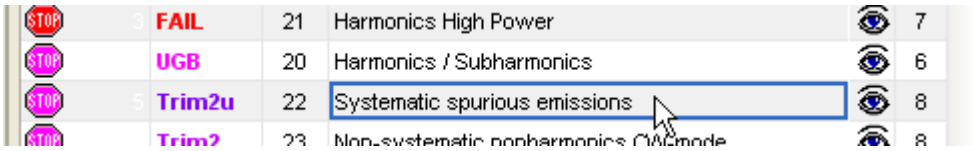
3.12.3 Test Report Area

The Test Report Area displays the test results in detail. You can navigate through the pages of the displayed Test Report in different ways:

► Use the standard scroll bar on the right hand side of the Test Report Area.

► If present, use the wheel of your mouse after clicking once into the Test Report Area.

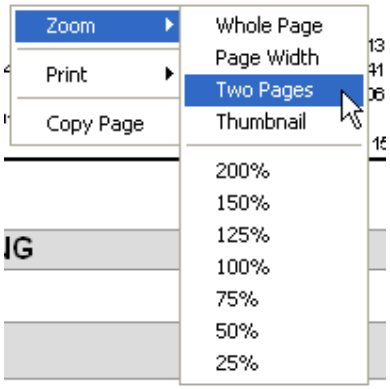
► A left click on a line in "Test Overview" Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79]) navigates directly to the corresponding test report page.

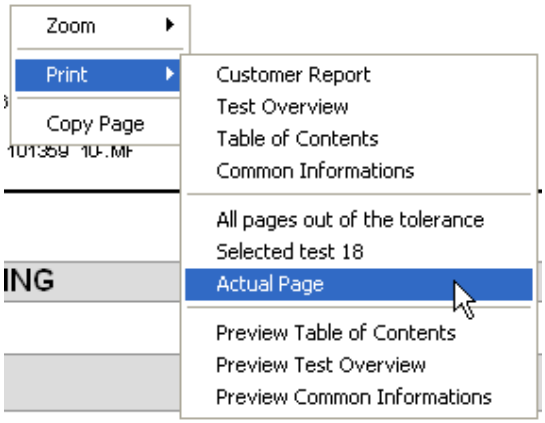


► A left click on a line in Table of Contents (see section 3.12.2.2 "Table of Contents Tab" [p. 82]) navigates directly to the corresponding test report page.

► Right click in the Test Report Area and use "Zoom" from the Context menu to display the pages at a suitable size.

Pages may also be printed by means of the context menu. For further information about the zooming and printing items see section 3.12.6.7 "Zooming the Test Report Area" [p. 93] and section 3.12.6.2 "Printing the Test Report" [p. 87]. Additionally, the current Test Report page can be copied to the clipboard using the context menu.



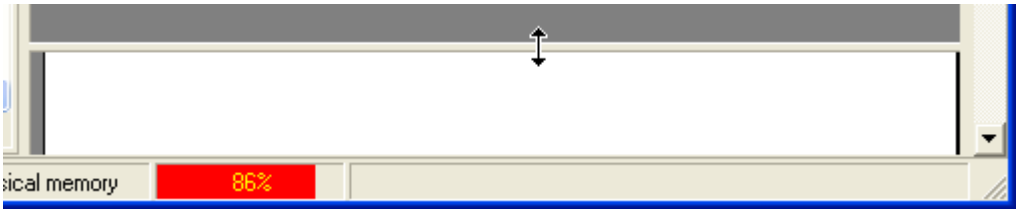


3.12.4 Zoom Area

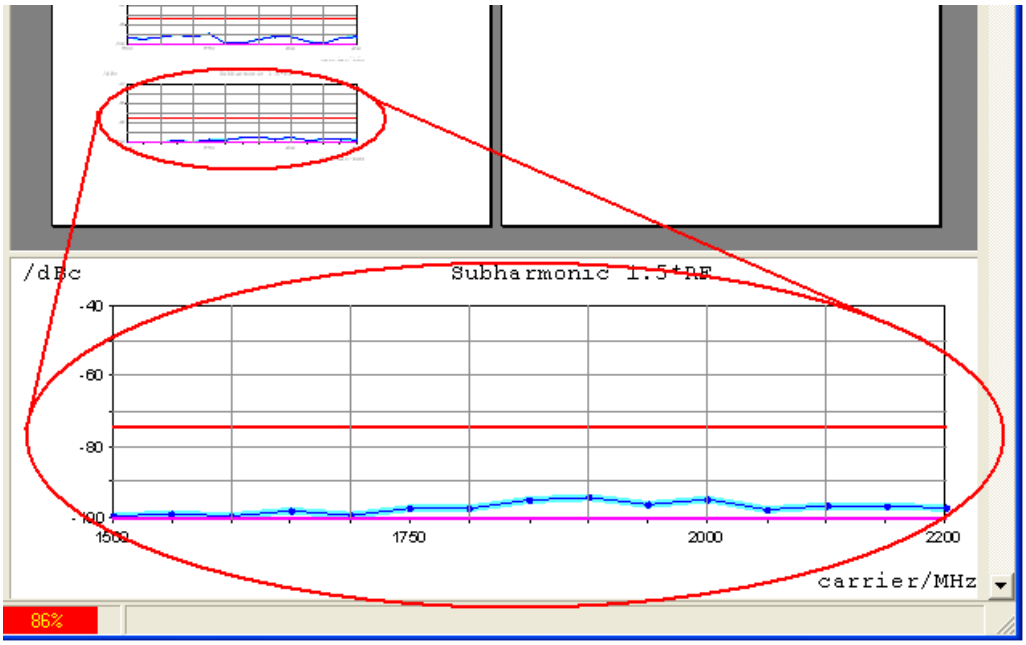
A good compromise between showing whole pages and having access to detail is to use the Zoom Area. The size of the Zoom Area can be modified as follows:

1. Move the mouse cursor to the position between the report area and the status bar until it changes to a double arrow.

2. Hold the left mouse button pressed and move the cursor upwards. A magnifier area will open.



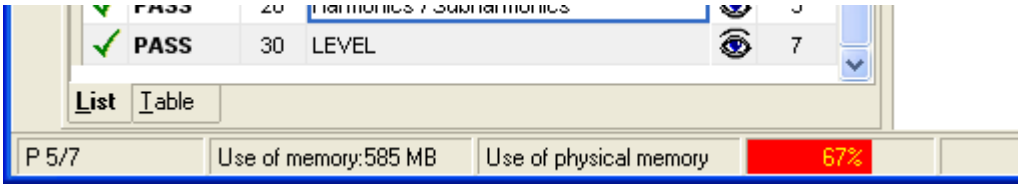
3. Move the mouse cursor through the Test Report area, the area around the mouse cursor will be enlarged in the magnifier area.



In this way you can display a whole page for a quick overview and simultaneously take a closer look at any areas of interest.

3.12.5 Status Line

The Status Line displays the current Test Report page shown in the Test Report Area (see section 3.12.3 "Test Report Area" [p. 84]) and the current memory and physical memory usage of the operating system.



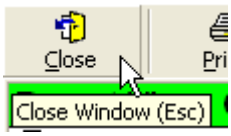
The colour bar in the field "Use of physical memory" can help to optimize the memory equipment of your System Controller and so to optimize the working speed.
The percentage value states the usage of the complete physical memory, this is physical RAM and virtual RAM (on the hard-disk) together. If the colour bar turns red (as in the example window above), this is an indication, that the physical RAM is completely in use and the PEB starts to use the virtual RAM.
As the usage of the virtual RAM takes more time than the usage of the physical RAM, it may speed up your PC when increasing the physical RAM.
A well memory equipped PC should always show a green colour bar.

3.12.6 Toolbar

The toolbar provides settings and tools to analyze, display and export the current Test Report data. The following chapters go into more detail.

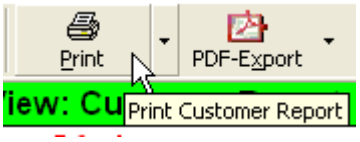
3.12.6.1 Closing the Test Report

► Click the "Close" button to close Test Report window.

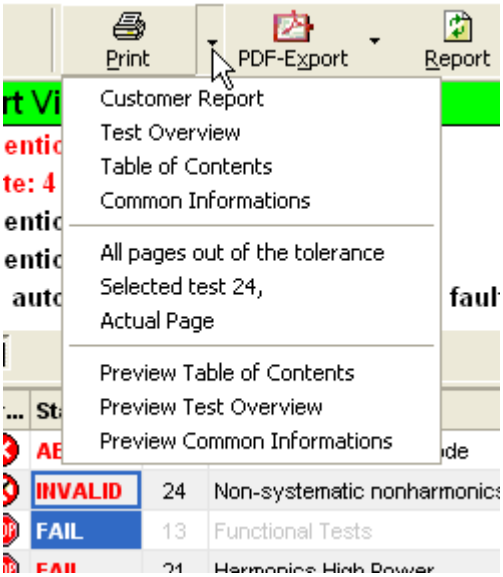


3.12.6.2 Printing the Test Report

► Click the "Print" button to print the entire Test Report.



► Click the "Print" drop down button to print only parts of the Test Report and to preview the print.

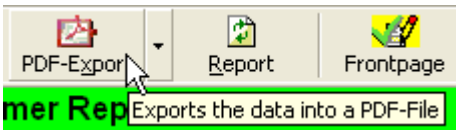


Following print features are available:

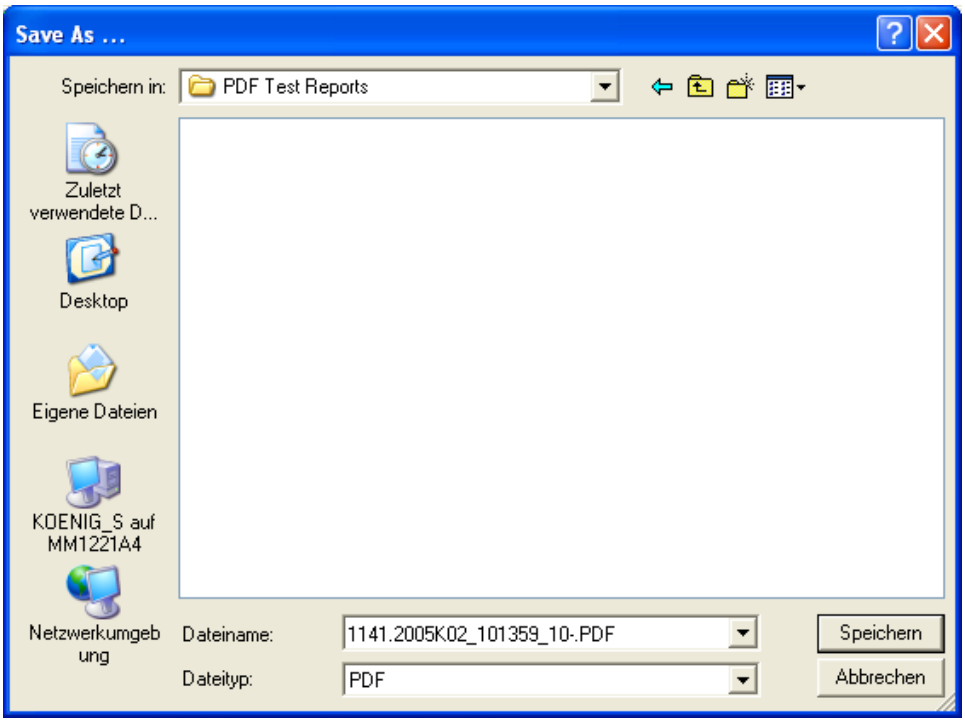
- Print the entire Test Report (Customer Test Report)
- Print the contents of the Test Overview Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79])
- Print the contents the Table of Contents Tab (see section 3.12.2.2 "Table of Contents Tab" [p. 82])
- Print the page with Common Information (see section 3.12.2.3 "Test Report Meta Data Tab" [p. 83])
- Print all pages containing tests out of tolerance
- Print the tests marked in the Test Overview Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79])
- Print the current Test Report page
- Preview the contents of the Table of Contents Tab (see section 3.12.2.2 "Table of Contents Tab" [p. 82])
- Preview the contents of the Test Overview Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79])
- Preview the page with Common Information (see section 3.12.2.3 "Test Report Meta Data Tab" [p. 83])

3.12.6.3 Creating a PDF Output

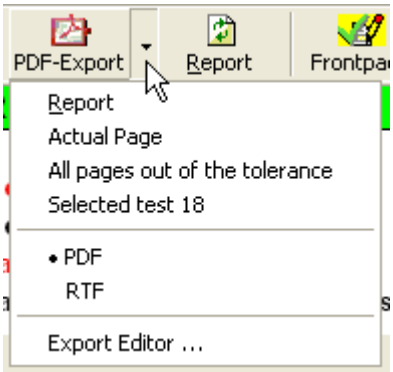
► Click the "PDF-Export" button to create a PDF file of the entire Test Report.



A dialog will be opened where you have to select a file name and a path to the location where the PDF output file will be saved. By default the file name is the same as the measurement file (but with extension .pdf). Operation of this dialogue follows the Windows™ standard.



► Click the "PDF-Export" drop down button to export only parts of the Test Report into a PDF file.



Following export features are available:

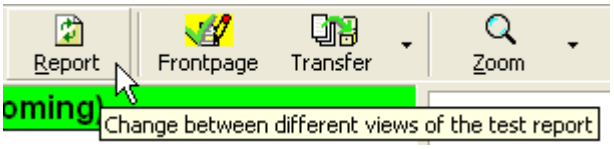
- Export the entire Test Report (Customer Test Report)
- Export the current Test Report page
- Export all pages containing tests out of tolerance
- Export the tests marked in the Test Overview Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79])
- Select the export format, PDF and RTF are available
- Preview the PDF file of the entire Test Report

3.12.6.4 Using additional Test Report Printout Modes

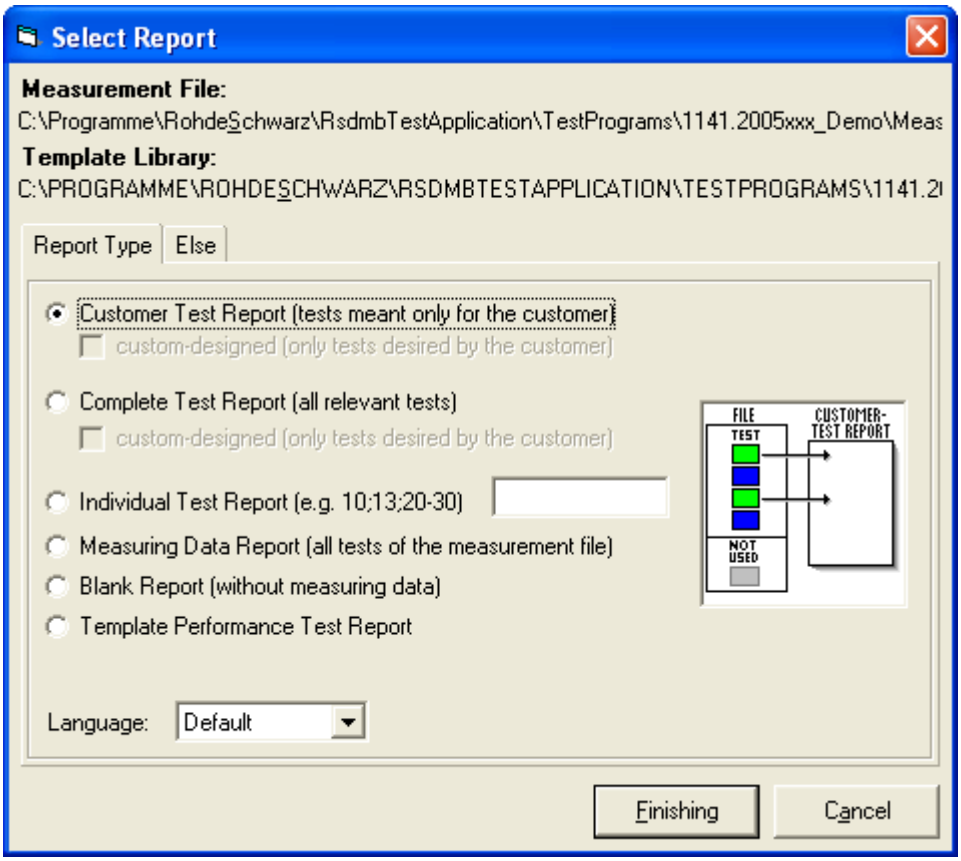
By default the Test Report Printout Mode is set to Customer Test Report. This shows all of the tests which will be printed in Customer Test Report.

In some special cases the DUT test sequence may contain additional tests for internal use only (if so, then this is described in the specific DUT manual).

► Click the "Report" button to change the printout mode of the current Test Report.



The "Select Report" dialog will be opened to set the Test Report Printout Mode.

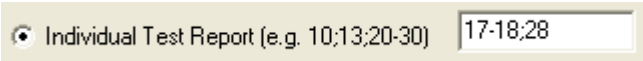


Following Printout Modes are available:

► Select "Customer Test Report" in the "Report Type" tab to show all tests which are part of the Master Test Sequence and Master Test Sequence Appendix (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]), and which are marked for the Customer Test Report by the Test Program.

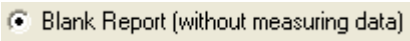
► Select "Complete Test Report" in the "Report Type" tab to show all tests which are part of the Master Test Sequence and Master Test Sequence Appendix (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]).

► Select "Individual Test Report" in the "Report Type" tab to define the tests shown in the Test Report. The tests to be defined in the entry field refer to the test in the Test Overview Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79]).



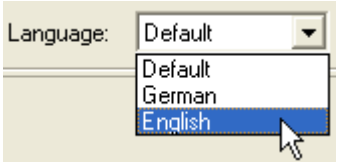
► Select "Measuring data Report" in the "Report Type" tab to show all tests contained within the current measurement file.

► Select "Blank Report" in the "Report Type" tab to show the test report template only. No test point results will be shown.

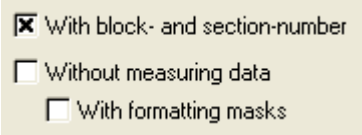


► Select "Template Performance Test Report" in the "Report Type" tab to show the current test report template without test point results but with placeholder for results. Thus, this template can be used to report manual measurements.

► Select "Language" list box in the "Report Type" tab to set the Test Report language.

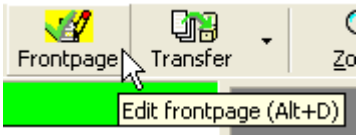


► Select the checkboxes of the "Else" tab to reveal or hide additional data within the Test Report.

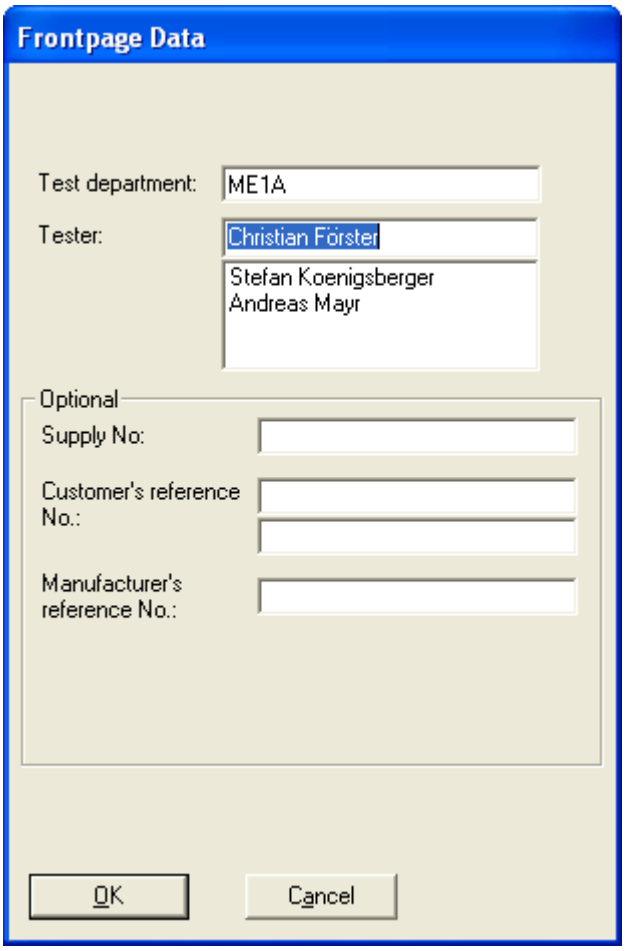


3.12.6.5 Editing the Front Page Data

► Click the "Frontpage" button to edit data which has been entered at startup of the DUT test (see section 3.7.6 "Filling in Test Report Front Page Data" [p. 57]).

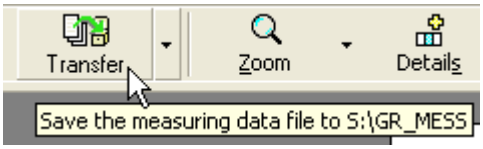


The Front Page Data dialog will open to allow the relevant data entry.

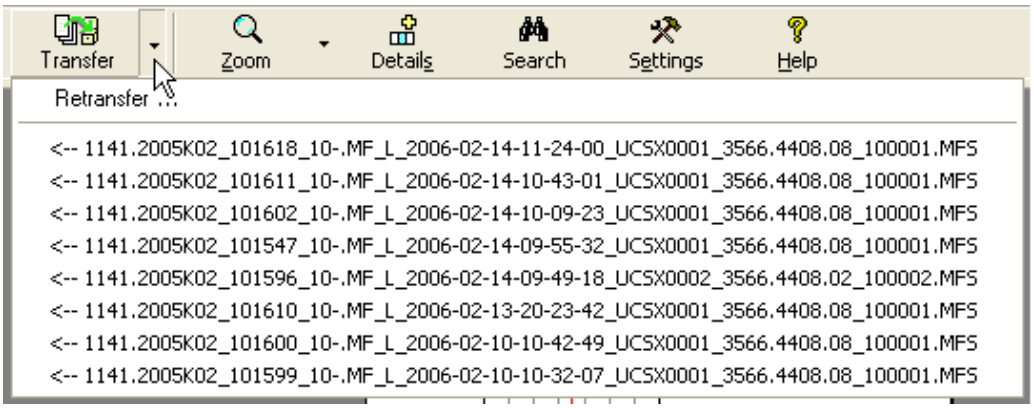


3.12.6.6 Transferring the Measurement File

► Click the "Transfer" button to transfer the current measurement file to the measurement file repository. For more information see section 3.15 "Transfer of Measurement Files" [p. 107].



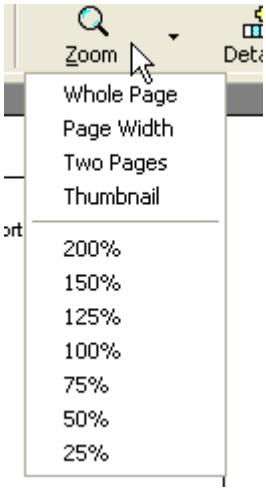
► Click the "Transfer" drop down button to retransfer a file from measurement file repository to the measurement file directory. For more information see see section 3.15 "Transfer of Measurement Files" [p. 107].



The measurement files last transferred are listed. Open the "File Select Dialog" by clicking on the "Retransfer" item to select a particular file from the measurement file repository.

3.12.6.7 Zooming the Test Report Area

► Click the "Zoom" button or the "Zoom" drop down button to zoom the displayed Test Report page to a suitable size.

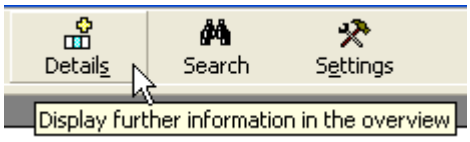


- Left double click on the Test Report Area (see section 3.12.3 "Test Report Area" [p. 84]) to zoom one step into the page.
- Right click on the Test Report Area (see section 3.12.3 "Test Report Area" [p. 84]) and use the "Zoom" command from the context menu to zoom the Test Report page.
- Use the Direct Zoom Mode by holding the CTRL key on the keyboard pressed while moving the mouse cursor to the Test Report Area (see section 3.12.3 "Test Report Area" [p. 84]). This changes the cursor style to a special zoom cursor. In this mode you can directly zoom-in or zoom-out by turning the mouse wheel forward or back, or by using the arrow keys on the keyboard.

When having zoomed into the page with an factor that does not show the complete page, you can move the displayed area of the page either by using the scroll bars, or directly by holding the left mouse button pressed inside the Test Report area and moving the mouse (the cursor changes to a hand symbol).

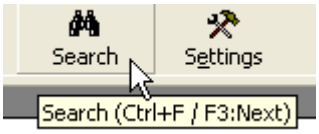
3.12.6.8 Extended Test Overview Tab

- Click the "Details" button to enhance the Test Overview Tab columns (see section 3.12.2.1 "Test Overview Tab" [p. 79]) with additional columns.

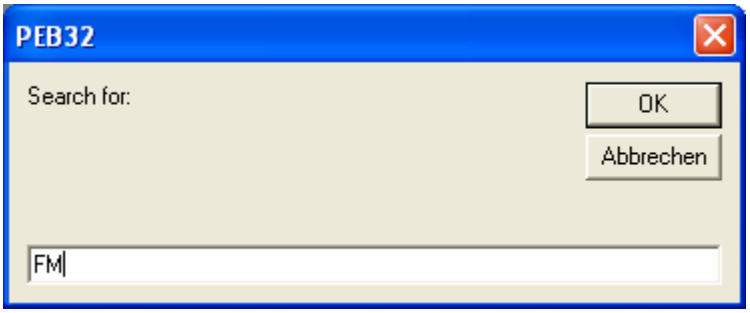


3.12.6.9 Searching in the Test Report

- Click the "Search" button to find strings in the current Test Report.



The search dialog will open to allow entry of the text to be searched for.

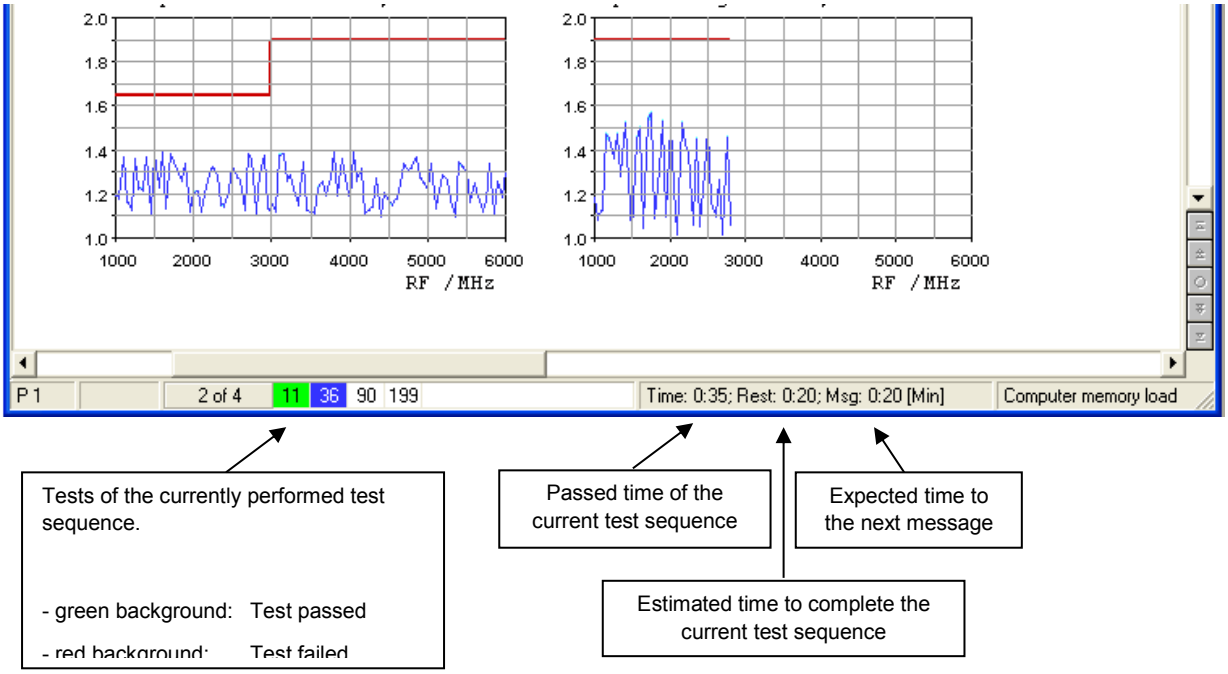


3.12.6.10 Test Report Settings

► Use the "Settings" button to adjust the Test Report setting. For further information see section 3.15.1 "Transfer Settings" [p. 108] and section 5.1 "Test Report Options" [p. 160].

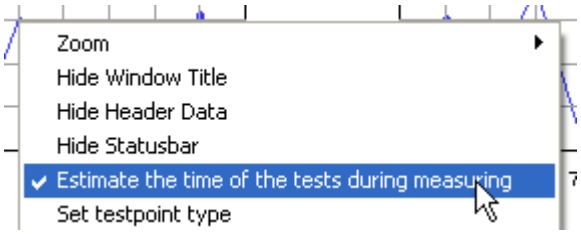
3.13 Measurement Window

The "Measurement Window" displays the progress and the measurement results of the currently performed test or the last performed test, respectively. Tables and charts are used to present the test results.



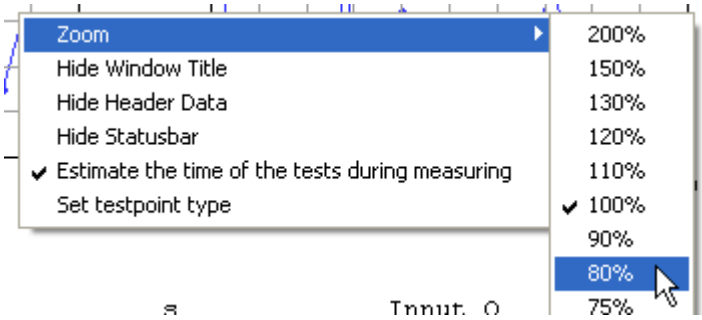
Additionally, the tests of the currently performed test sequence and the estimated time that is required to complete the test sequence is shown.

► Right click on the "Measurement Window" and use the "Estimate the time of the test during measuring" command from the context menu to switch on/off the determination of test sequence duration.

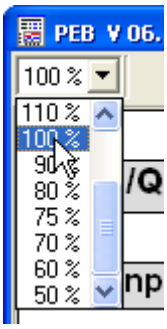


3.13.1 Zooming the Measurement Window

► Right click on the "Measurement Window" and use the "Zoom" command from the context menu to zoom the window



► or use the zoom control of the window header.



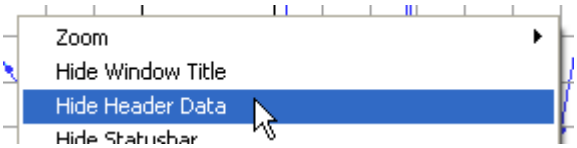
3.13.2 Customizing the Measurement Window

Showing/Hiding the Window Title

► Right click on "Measurement Window" and use the "Hide Window Title" command from the context menu to show or hide the window title.

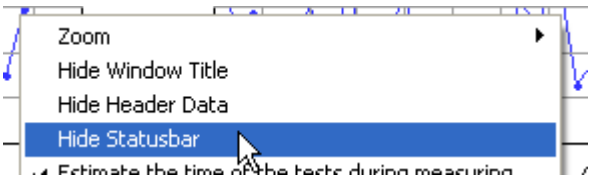
Showing/Hiding the Window Header

► Right click on "Measurement Window" and use the "Hide Header Data" command from the context menu to show or hide the window header.



Showing/Hiding the Status Bar

► Right click on "Measurement Window" and use the "Hide Statusbar" command from the context menu to show or hide the status bar.



3.13.3 Customizing a Chart

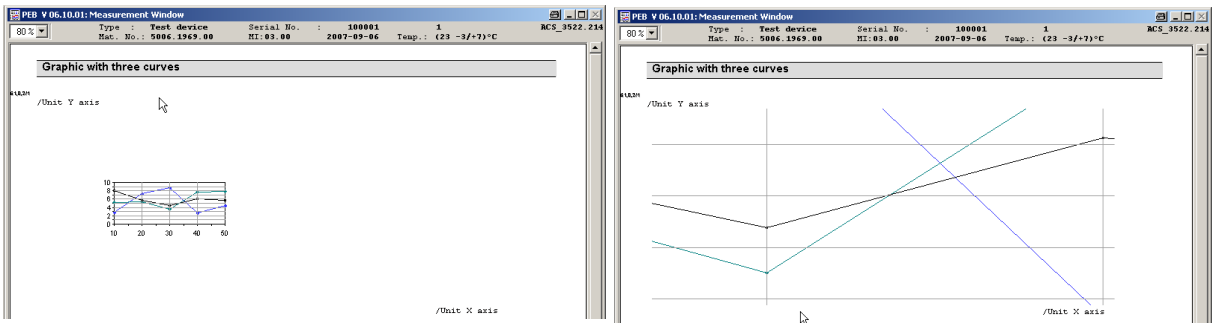
The visualization of the charts can be adjusted, e.g. to examine data more closely or to isolate a part of the chart. However, the adjustments affect only the selected chart in its reserved area of the measurement window.

Furthermore, a chart can be scaled, moved and zoomed.

Two different mechanisms for the zooming are available, the so-called graphics zoom and axis zoom. The graphics zoom enlarges the selected area of a chart. The axes are not necessarily shown in this case. The axis zoom changes the minimum and maximum data values and redraws only that data with the axes.

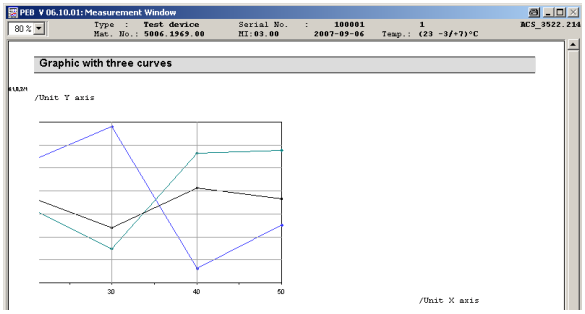
Scaling a Chart

► Press the CTRL key and hold down the middle mouse button (or the left and right mouse button on a 2-button mouse) while moving down the mouse to increase the chart or moving up the mouse to decrease the chart.



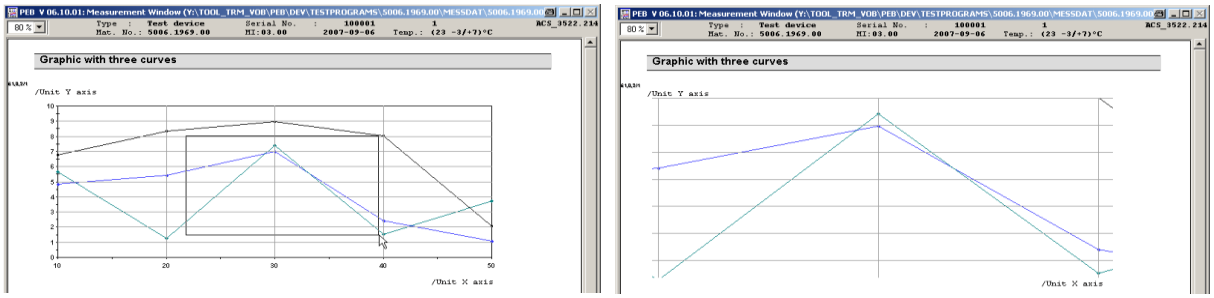
Moving a Chart

► Press the SHIFT key and hold down the middle mouse button (or the left and right mouse button on a 2-button mouse) while you moving the mouse to change the position of the chart inside of the reserved chart area.



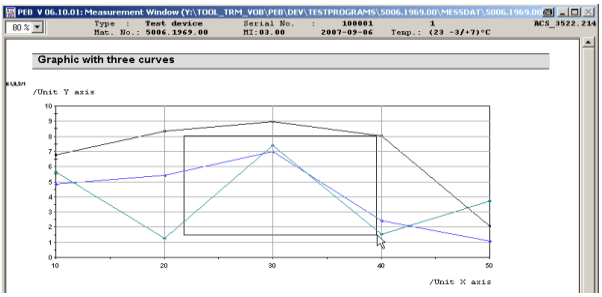
Zooming a Chart (Graphics Zoom)

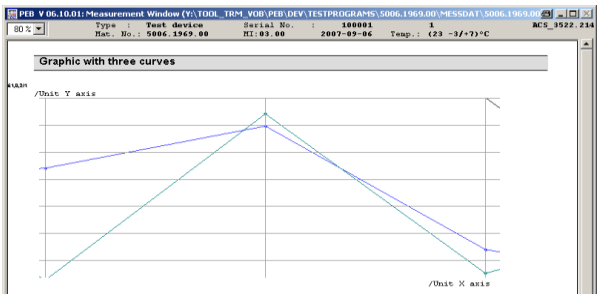
► Press the CTRL key and hold down the left mouse button while selecting the area to be zoomed.



Zooming a Chart (Axis Zoom)

► Press the SHIFT key and hold down the left mouse button while selecting the area to be zoomed.



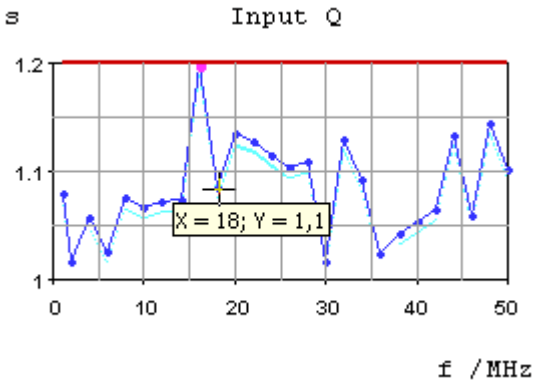


Resetting a Chart

► Right click on the chart and press the R key.

3.13.4 Displaying Values of a Chart

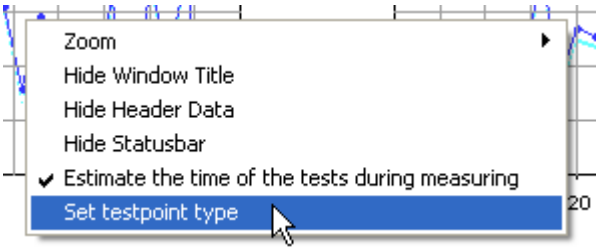
► Move the mouse over a test point to display the X/Y values of the test point.

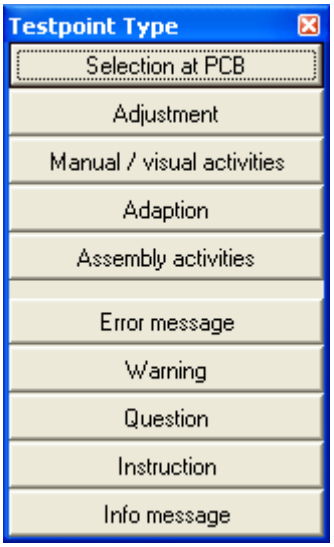


Teaching the Measurement Window

To improve the determination of the test sequence duration, test points which require interaction with the user can be marked. For that purpose, a test process must be interrupted at such a test point (see section 3.3.7 "Interrupt Panel" [p. 34]) and the test point type must be set once.

► Right click on "Measurement Window" and use the "Set testpoint type" command from the context menu to show the non-modal test point type dialog.





The test point type information may be lost if the test program is updated and the related test has been modified.

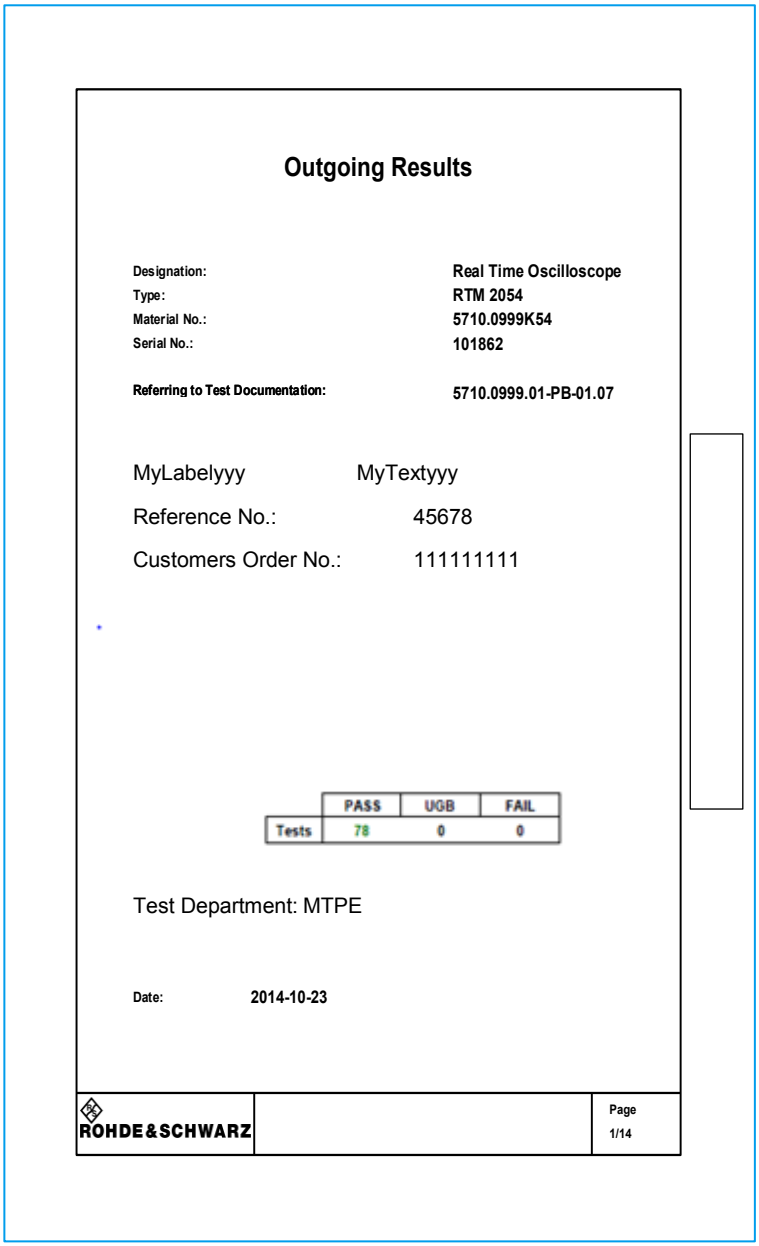
3.14 Layout and Content of printed Test Reports

Printed test reports have the following layout:

3.14.1 Page 1 (front page):

The front page contains the DUT and order-specific data entered in the DUT data window and Front Page edit window and an area for the customer signature.

The headline is created dependent on the selected Test Report status. For further information see section 3.5.2 "Filling in Test specific Data" [p. 46].



Outgoing Results

Designation:	Real Time Oscilloscope
Type:	RTM 2054
Material No.:	5710.0999K54
Serial No.:	101862
Referring to Test Documentation:	5710.0999.01-PB-01.07

MyLabelyyy MyTextyyy

Reference No.: 45678

Customers Order No.: 111111111

	PASS	UGB	FAIL
Tests	78	0	0

Test Department: MTPE

Date: 2014-10-23

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Possible headlines for a test report:

- "Test Report", if Test Mode "Outgoing" selected
- "Incoming Test Report", if Test Mode "Incoming"" selected

3.14.2 Page 2

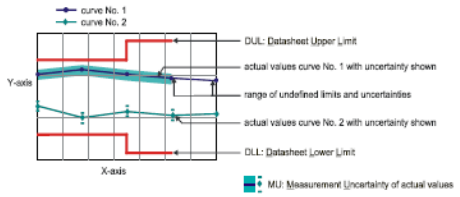
Type	RTM 2054	**Serial No.**	101862
Test System	UCSX0192_5005.7005.02_100192	**Material No.**	5710.0999K54
Temperature	(23 -3/+7)°C	**Date**	2014-10-23
File	5710.0999K54_101862_10-.MF		
Page	2 / 42		

ROHDE&SCHWARZ

The following abbreviations may be used in this document

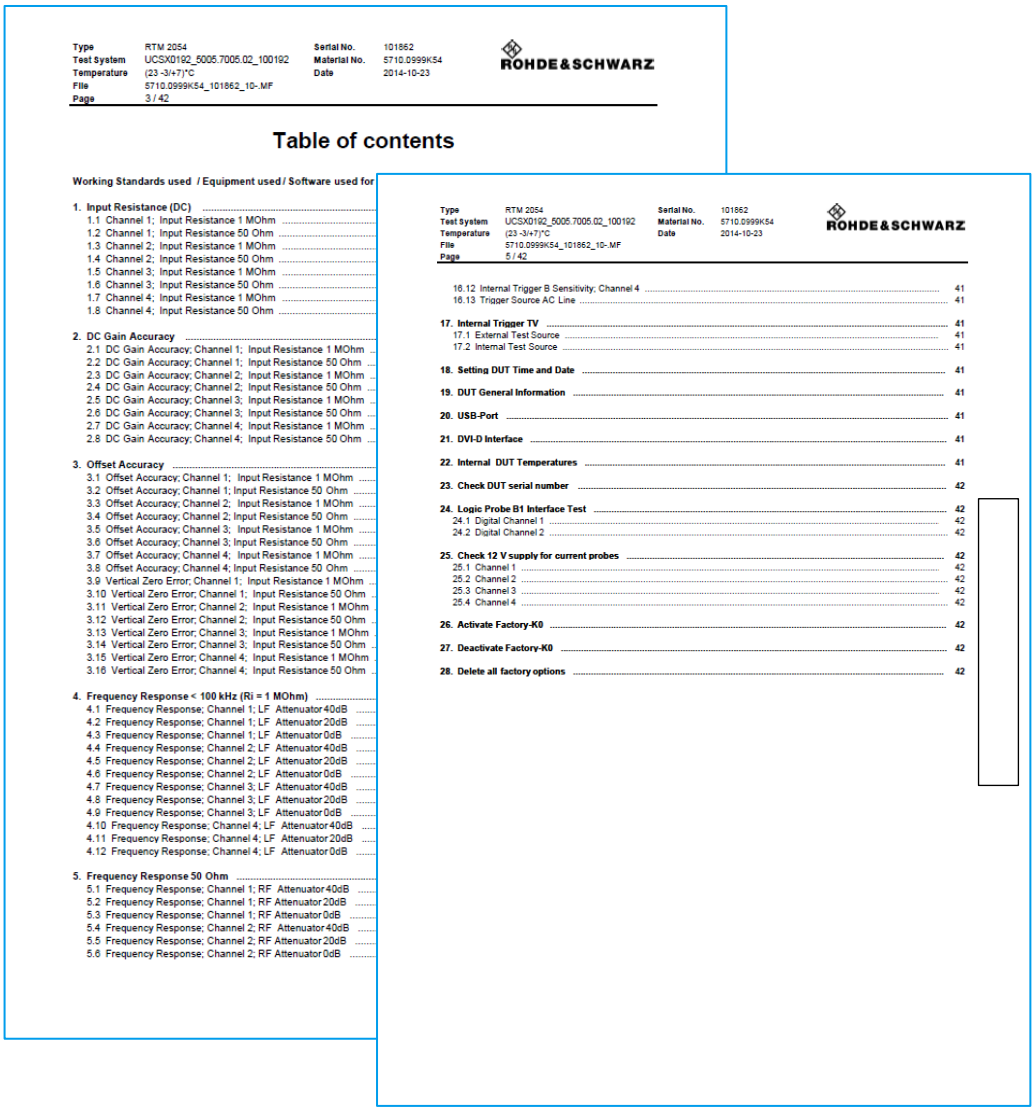
{a}	No measurement uncertainty stated because the errors always add together. So it is sure that a measurement result evaluated as "PASS" is pass.
{b}	The measurement uncertainty depends on the measurement result. The stated measurement uncertainty is valid for the close area around the specification. Measurement results outside the close area have a higher measurement uncertainty but are within the specification.
{c}	Functional test, therefore no measurement uncertainty is stated.
{d}	Typical value, refer to performance test.
{e}	The measurement uncertainty is taken into account when setting the measuring system.
DL or DT	Data Limit for symmetrical tolerance limits
FL or FT	Factory Limit for symmetrical tolerance limits
DLL	Datasheet Lower Limit
DUL	Datasheet Upper Limit
MU	Symmetrical Measurement Uncertainty
MLL or MLV	Measurement Uncertainty Lower Value
MUL or MUV	Measurement Uncertainty Upper Value
Nom.	Nominal Value
Dev.	Deviation
MErr.	Measurement Error
Act.	Actual Value
UGB	Uncertainty Guard Band: Measuring uncertainty violates the data (spec.) limit.
UGB1	Measurement results marked as UGB1 show conformity with a probability of >50 % and <95 %.
UGB2	Measurement results marked as UGB2 show non-conformity with a probability of >50 % and <95 %.
DU	Datasheet Uncertainty

Explanation of charts



This page shows the conventions and abbreviations used in the test report.

3.14.3 Page 3 and further pages



Type	RTM 2054	Serial No.	101862
Test System	UCSX0192_5005.7005.02_100192	Material No.	5710.0999K54
Temperature	(23 -3/+7)°C	Date	2014-10-23
File	5710.0999K54_101862_10-.MF		
Page	3 / 42		

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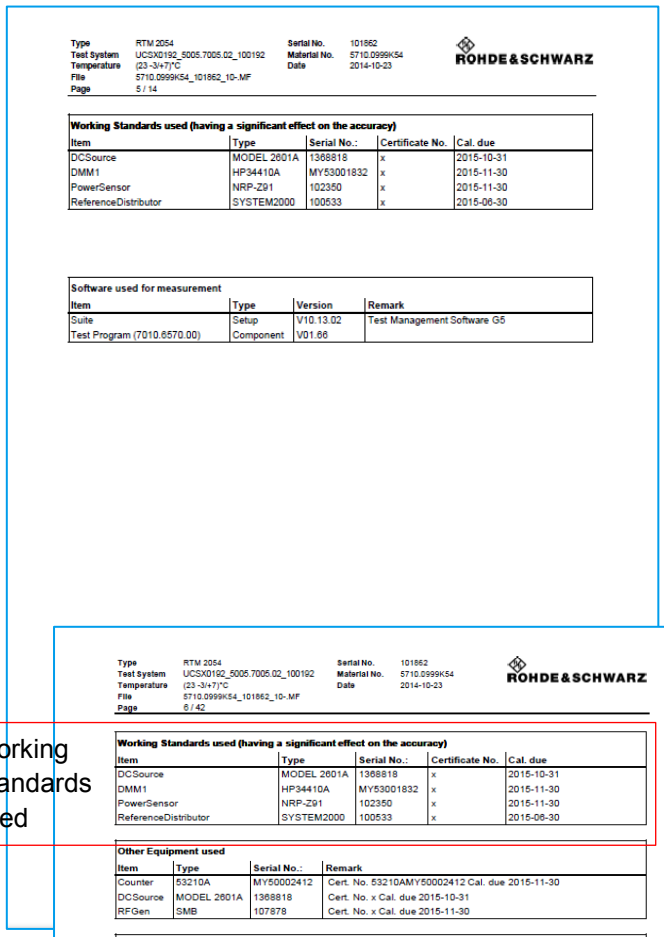
Table of contents

Type	RTM 2054	Serial No.	101862
Test System	UCSX0192_5005.7005.02_100192	Material No.	5710.0999K54
Temperature	(23 -3/+7)°C	Date	2014-10-23
File	5710.0999K54_101862_10-.MF		
Page	5 / 42		

ROHDE&SCHWARZ

This page shows the table of contents of the test report. The list is dynamic and created automatically after the completion of measurements. i.e. contains only the tests which were actually performed.

<u>After table of contents within a Customer Report:</u>
(Without table of “Other Equipment used” and a reduced
table “Software used for measurement”)



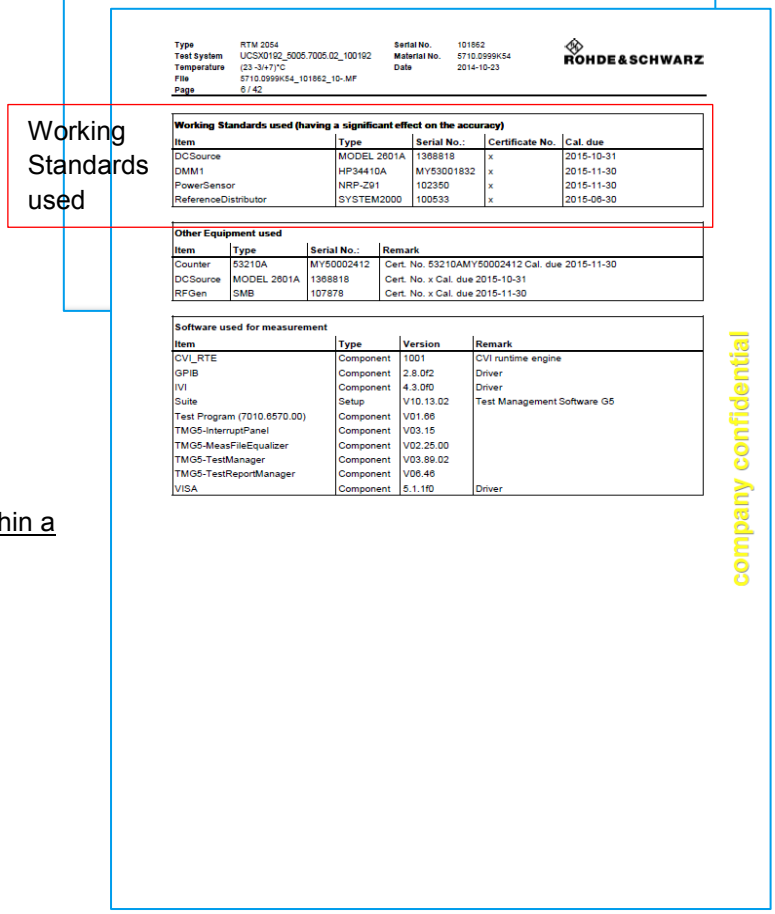
Type	RTM 2054	Serial No.	101862
Test System	UCSX0192_5005.7005.02_100192	Material No.	5710.0999K54
Temperature	(23 -3/+7)°C	Date	2014-10-23
File	5710.0999K54_101862_10-.MF		
Page	5 / 14		

ROHDE&SCHWARZ

Working Standards used (having a significant effect on the accuracy)				
Item	Type	Serial No.:	Certificate No.	Cal. due
DCSource	MODEL 2601A	1368818	x	2015-10-31
DMM1	HP34410A	MY53001832	x	2015-11-30
PowerSensor	NRP-Z91	102350	x	2015-11-30
ReferenceDistributor	SYSTEM2000	100533	x	2015-06-30

Software used for measurement			
Item	Type	Version	Remark
Suite	Setup	V10.13.02	Test Management Software G5
Test Program (7010.6570.00)	Component	V01.66	

<u>After table of contents within a Complete Report:</u>



Type	RTM 2054	Serial No.	101862
Test System	UCSX0192_5005.7005.02_100192	Material No.	5710.0999K54
Temperature	(23 -3/+7)°C	Date	2014-10-23
File	5710.0999K54_101862_10-.MF		
Page	6 / 42		

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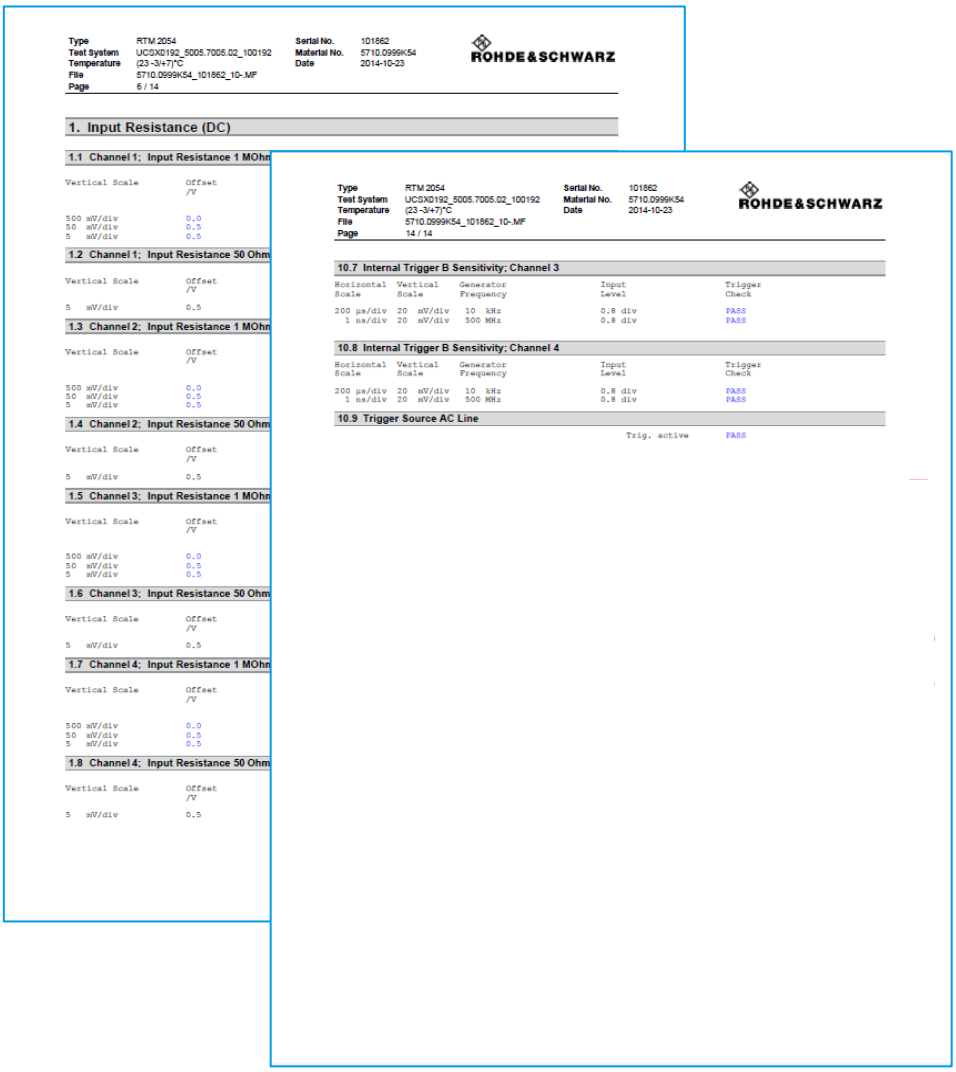
Working Standards used

Working Standards used (having a significant effect on the accuracy)				
Item	Type	Serial No.:	Certificate No.	Cal. due
DCSource	MODEL 2601A	1368818	x	2015-10-31
DMM1	HP34410A	MY53001832	x	2015-11-30
PowerSensor	NRP-Z91	102350	x	2015-11-30
ReferenceDistributor	SYSTEM2000	100533	x	2015-06-30

Other Equipment used			
Item	Type	Serial No.:	Remark
Counter	53210A	MY50002412	Cert. No. 53210AMY50002412 Cal. due 2015-11-30
DCSource	MODEL 2601A	1368818	Cert. No. x Cal. due 2015-10-31
RFGen	SMB	107878	Cert. No. x Cal. due 2015-11-30

Software used for measurement			
Item	Type	Version	Remark
CVI_RTE	Component	1001	CVI runtime engine
GPIB	Component	2.8.0f2	Driver
IVI	Component	4.3.0f0	Driver
Suite	Setup	V10.13.02	Test Management Software G5
Test Program (7010.6570.00)	Component	V01.66	
TMG5-InterruptPanel	Component	V03.15	
TMG5-MeasFileEqualizer	Component	V02.25.00	
TMG5-TestManager	Component	V03.89.02	
TMG5-TestReportManager	Component	V06.46	
VISA	Component	5.1.1f0	Driver

company confidential



Type RTM 2054
Test System UCSXD192_5005.7005.02_100192
Temperature (23 -3/+7)°C
File 5710.0999K54_101862_10-.MF
Page 6 / 14
Serial No. 101862
Material No. 5710.0999K54
Date 2014-10-23
ROHDE&SCHWARZ

1. Input Resistance (DC)

1.1 Channel 1; Input Resistance 1 MOhm

Vertical Scale	Offset /V
500 mV/div	0.0
50 mV/div	0.5
5 mV/div	0.5

1.2 Channel 1; Input Resistance 50 Ohm

Vertical Scale	Offset /V
5 mV/div	0.5

1.3 Channel 2; Input Resistance 1 MOhm

Vertical Scale	Offset /V
500 mV/div	0.0
50 mV/div	0.5
5 mV/div	0.5

1.4 Channel 2; Input Resistance 50 Ohm

Vertical Scale	Offset /V
5 mV/div	0.5

1.5 Channel 3; Input Resistance 1 MOhm

Vertical Scale	Offset /V
500 mV/div	0.0
50 mV/div	0.5
5 mV/div	0.5

1.6 Channel 3; Input Resistance 50 Ohm

Vertical Scale	Offset /V
5 mV/div	0.5

1.7 Channel 4; Input Resistance 1 MOhm

Vertical Scale	Offset /V
500 mV/div	0.0
50 mV/div	0.5
5 mV/div	0.5

1.8 Channel 4; Input Resistance 50 Ohm

Vertical Scale	Offset /V
5 mV/div	0.5

Type RTM 2054
Test System UCSXD192_5005.7005.02_100192
Temperature (23 -3/+7)°C
File 5710.0999K54_101862_10-.MF
Page 14 / 14
Serial No. 101862
Material No. 5710.0999K54
Date 2014-10-23
ROHDE&SCHWARZ

10.7 Internal Trigger B Sensitivity; Channel 3

Horizontal Scale	Vertical Scale	Generator Frequency	Input Level	Trigger Check
200 µs/div	20 mV/div	10 kHz	0.8 div	PASS
1 ns/div	20 mV/div	500 MHz	0.8 div	PASS

10.8 Internal Trigger B Sensitivity; Channel 4

Horizontal Scale	Vertical Scale	Generator Frequency	Input Level	Trigger Check
200 µs/div	20 mV/div	10 kHz	0.8 div	PASS
1 ns/div	20 mV/div	500 MHz	0.8 div	PASS

10.9 Trigger Source AC Line

Trig. active PASS

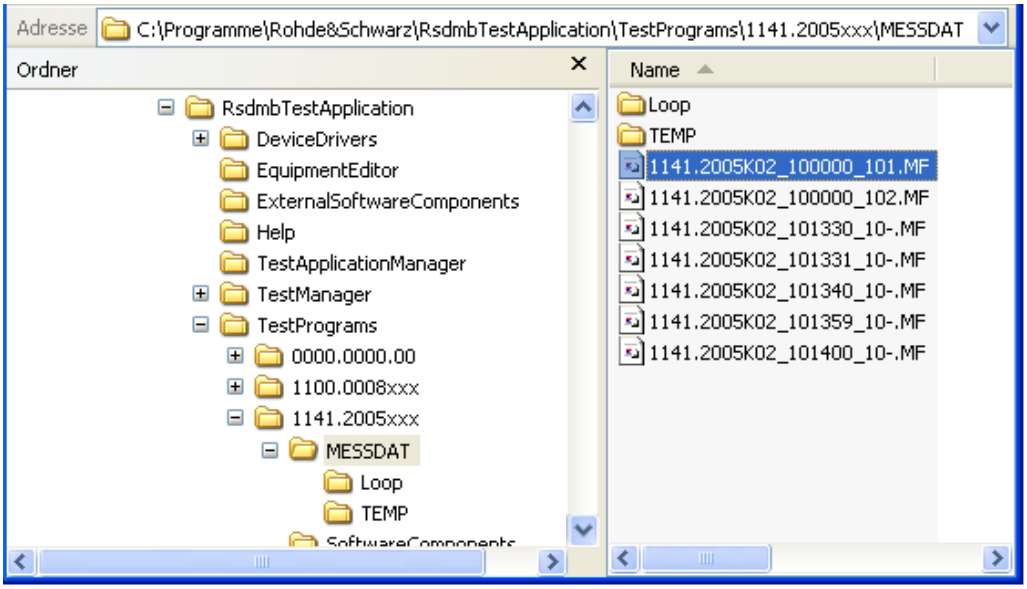
Afterwards, the measurement results are listed. Only pages of tests actually run will be printed. No blank result pages will be printed.

Failed results will be marked with "Fail" in the right-hand margin.

Test results within the data sheet tolerance but also within the area of the measurement uncertainty are marked with "UGB" (Uncertainty Guard Band). For further information see section 3.11.1 "Terms and Abbreviations in Test Reports" [p. 71].

3.15 Transfer of Measurement Files

Measurement files are stored on the local drive in the measurement file directory which is a sub-directory of the Test Program directory.



The measurement file name is built of the material and serial number of the DUT as well the test conditions. This storage system may lead to a problem if the DUT test is completed and the state of all tests is PASS. If the same DUT is retested, e.g. after repair or for re-calibration, the results will be overwritten. Therefore, the measurement file name must be unique.

TheTM G5 provides a mechanism to rename the measurement file names. For further information about file names see section 3.15.4 "Encoding of transferred Measurement Files" [p. 111]. Additionally, this mechanism compresses the measurement file and moves the file to the Measurement File Repository (see section 3.15.5 "Measurement File Repository" [p. 112]). This compressing, renaming and moving procedure is called Measurement File Transfer.

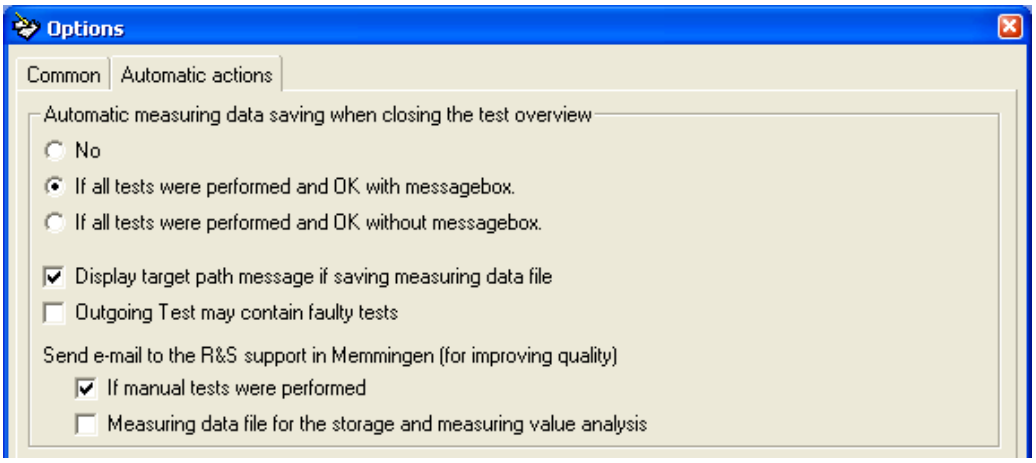
To make the file handling more safe and comfortable, an automatic transfer mechanism is implemented within theTM G5. Measurement files which are found as completed can be transferred to the repository automatically.

The Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) has to be used to change the location of the Measurement File Repository (see section 3.15.5 "Measurement File Repository" [p. 112]).

3.15.1 Transfer Settings

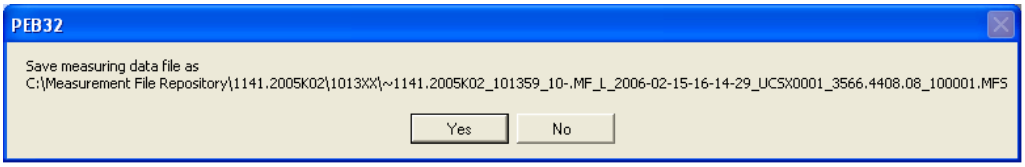
By default the automatic transfer mechanism with confirmation and confirmation on manual transfer is activated. These settings can be modified if necessary:

1. Open a Test Report (see section 3.11 "Handling of Test Reports" [p. 71]).
2. Open the "Test Report Settings" menu (see section 3.12.6.10 "Test Report Settings" [p. 95]).
3. Select the tab "Automatic actions".

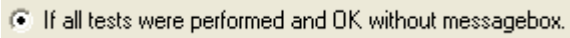


► Select "If all tests were performed and OK with messagebox" to save a measurement file automatically.

Save must be confirmed.



► Select "If all tests were performed and OK without messagebox" to save a measurement file automatically. No confirmation dialog will appear.



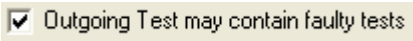
Following conditions have to be fulfilled to transfer a measurement file automatically:

- All of the tests of the Master Test Sequence and Master Test Sequence Appendix (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]) have been executed.
- All of the executed tests have a PASS status.
- The Test Report Front Page Data (see section 3.7.6 "Filling in Test Report Front Page Data" [p. 57]) have been entered.

► Select "No" to switch off the automatic transfer mechanism.

► Activate the "Display target path message if saving measuring data file" checkbox to force a confirmation by transferring the measurement file manually, i.e. using the "Transfer" button (see section 3.12.6.6 "Transferring the Measurement File" [p. 93]).

► Activate the "Outgoing Test may contain faulty tests" checkbox to enable a manual transfer of the measurement file, i.e. using the "Transfer" button (see section 3.12.6.6 "Transferring the Measurement File" [p. 93]), even if not all tests have a PASS status.



3.15.1.1 Automatic e-mail dispatch

E-mails can be sent to the Rohde & Schwarz Messgerätebau GmbH service department automatically to perform statistical evaluations or to improve test procedures. An e-mail is dispatched after a measurement file has been transferred.

► Activate the "If manual tests were performed" checkbox to send a e-mail if tests are performed manually.

► Activate the "Measuring data file for the storage and measuring value analysis" checkbox to send a mail after a measurement file has been transferred. The mail contains the measurement results.

3.15.2 Automatic Transfer

By default a measurement file will be transferred automatically to the Measurement File Repository (see section 3.15.5 "Measurement File Repository" [p. 112]) if the following conditions are fulfilled:

- The Measurement File Repository has been defined, see section 7.1 "TweakTM G5" [p. 171].
- The Automatic Transfer mechanism has been switched on, see section 3.15.1 "Transfer Settings" [p. 108].
- All of the required tests for the current DUT have been executed, see section 3.7 "Performing a complete DUT Test" [p. 53].
- All of the executed tests have a PASS status.
- The front page data has been entered, see section 3.7.6 "Filling in Test Report Front Page Data" [p. 57].

The transfer of a completed measurement file to the repository should be the last action for a DUT. Therefore, after a successful transfer the original measurement file will be removed from the measurement file directory.

The automatic transfer of measurement files will be done for all measurement files with a valid additional marking (Incoming Test, Outgoing Test, see also section 3.5.2 "Filling in Test specific Data" [p. 46]).

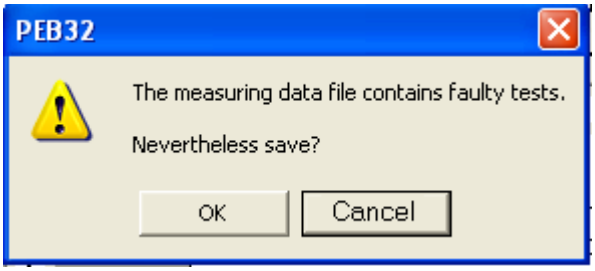
There is a special condition, if the Incoming Test contains failed tests. In this case the Incoming Test will be transferred automatically during the transfer procedure of the Outgoing Test. This information is displayed within the Info Area (see section 3.12.1 "Info Area" [p. 77]) of the Test Report.

3.15.3 Manual Transfer

A measurement file can also be transferred manually, if the preconditions for an Automatic Transfer (see section 3.15.2 "Automatic Transfer" [p. 110]) are not fulfilled or the automatic transfer is switched off. For further information see section 3.15.1 "Transfer Settings" [p. 108].

One reason to transfer a measurement file manually might be that not all DUT tests have been completed.

1. Open a Test Report (see section 3.11 "Handling of Test Reports" [p. 71]).
2. Click the "Transfer" button of the "Test Report" toolbar to transfer the current measurement file (see section 3.12.6.6 "Transferring the Measurement File" [p. 93]).
3. Confirm the query.



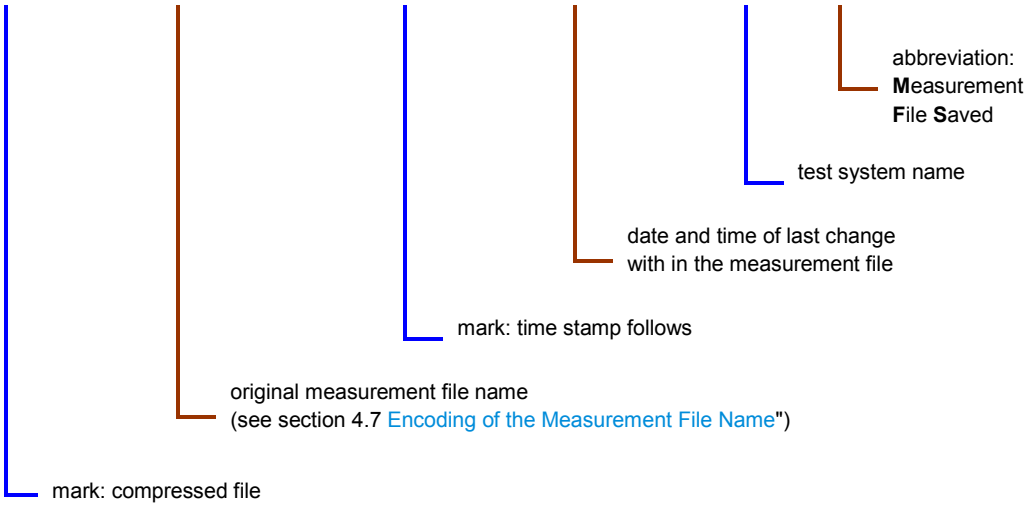
3.15.4 Encoding of transferred Measurement Files

Before a measurement file is transferred to the Measurement File Repository (see section 3.15.5 "Measurement File Repository" [p. 112]) the original file is compressed to save disk space and renamed to obtain a unique file name.

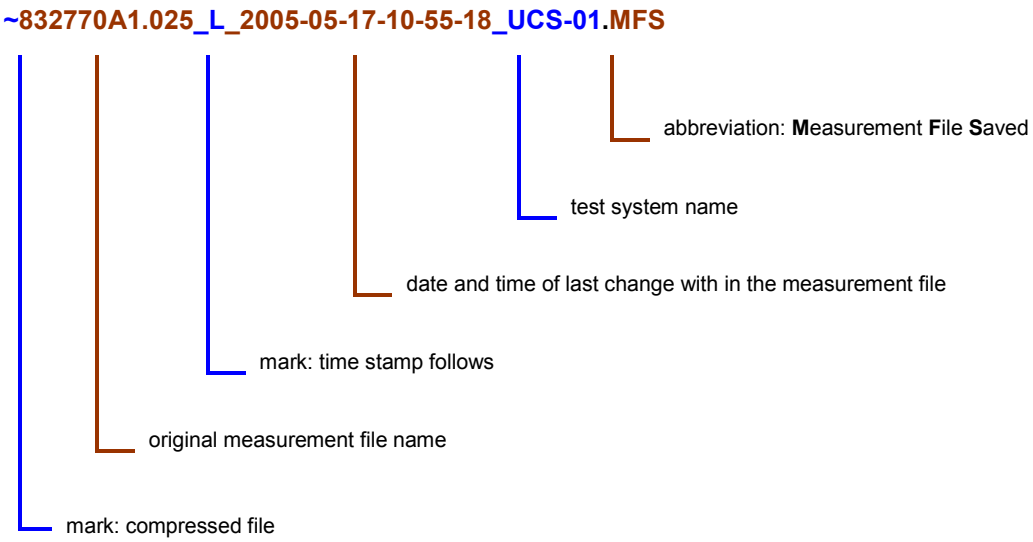
The two examples below describe the construction of a transferred measurement file name.

Standard Device Data Format (material and serial number):

~1141.2005K02_100000_101.MF_L_2005-05-17-10-55-18_UCS-01.MFS

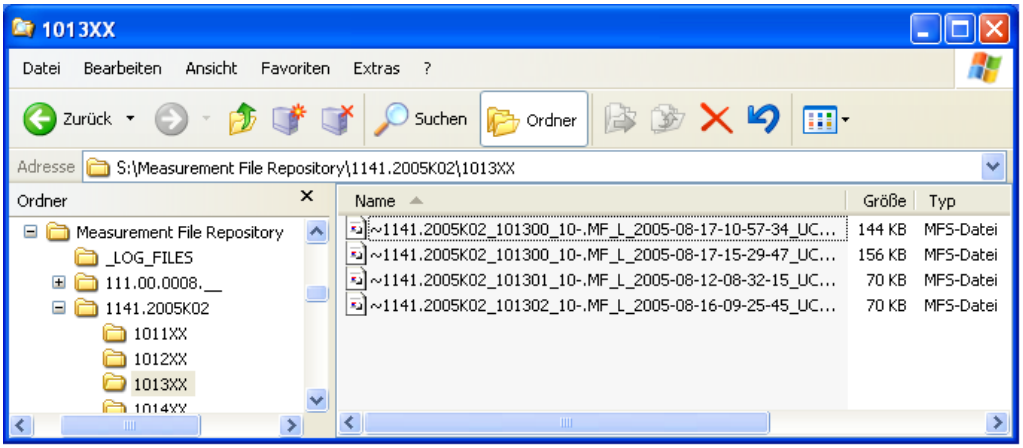


Old-fashioned Device Data Format (ident and serial number):



3.15.5 Measurement File Repository

The Measurement File Repository contains all transferred measurement files.



The repository is built by a defined directory structure.

Start point is the root directory which can be modified only by Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]).

The device directories appear under the root directory. The name of a device directory is built either by the material number or by the ident number of the device depending on the used device data format, the standard style or the old style. The device data format will be defined in the Configuration Database Editor (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).

The device directory contains all the measurement files of the DUT with the same material or ident number. If the standard style of the device data format (see section 3.5.1 "Filling in DUT specific Data" [p. 44]) is used, the measurement files are grouped together in sets of upto 100 serial numbers. If the old style of the device data format is used, each set contains the files in serial number prefix order. The prefix is built by the first 6 digits of the serial number (see section 3.5.1 "Filling in DUT specific Data" [p. 44]).

3.16 Calibration Document (optional)

A Calibration Document is needed if a calibration is necessary for a DUT.

“Calibration necessary” will be configured within SAP for a DutMaterialNumber and transmitted to the POP database. G5 get this information from POP database.

R&S Guideline: Results reports (PAD-M) (Ergebnisberichte (PAD-M))

There are two different kinds of a Calibration possible:

- Factory Calibration (First Calibration) (Test Mark “**-**“) (normally done within a R&S-Factory)
  (Calibration Document Part1 and Part2 only if it’s ordered by the customer)

- Re-Calibration (Test Mark “**2**“) (done within a R&S-Factory or a R&S Service Centre)
  (Calibration Document Part1 + Part2 + Incoming Results if not all measurement results are “PASS”)

A Calibration Document has always it’s unique Certificate-No. (Certificate ID).

Format of Certificate-No. for a Factory Calibration: <Factory No>-<DataRecordNo>

Format of Certificate-No. for a Re-Calibration: <Factory No>-<ServiceOrderNo> (Serviceauftragsnummer)

(Search key: calibration necessary, kalibrierpflichtig)

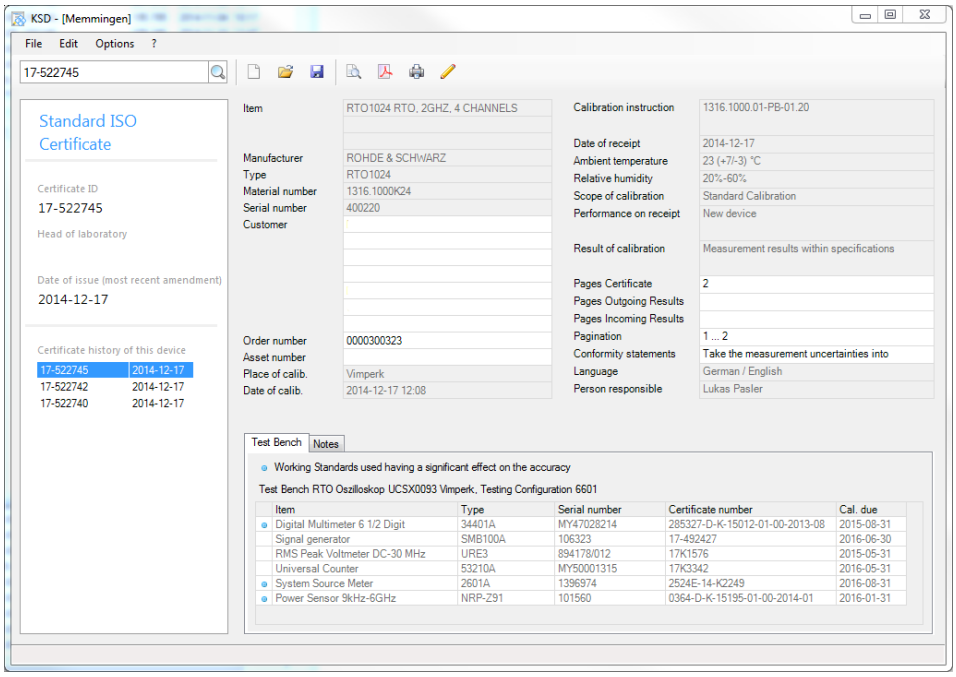
3.16.1 R&S Tool KSD for creating a Calibration Document

With the Tool KSD you can create a Calibration Document (without Documented Calibration Values (DCV)).
The Tool exists within the “Menükarte”.

For a Calibration Document (e.g.: *17-522745*) you need some basic documents:

- Calibration instruction (e.g.: *1316.1000.01-PB-01.20*) (Synonyms: Product Description (R&S), Test Documentation (G5))
- Testing Configuration (e.g.: *6601*) from PMV based on a Calibration Description (Kalibrierbeschreibung).
  A Calibration Description will be created by the TestProgramDeveloper.

Tool KSD:



(Search key: Calibration Certificate, Standard ISO Certificate)

3.16.1.1 Calibration Document controlled by G5 and KSD

Automatically creation of a Calibration Document for a
Factory Calibration (Test Mark "-") with TRM (PEB) inside the G4/G5 (KSD will be remote-controlled).
A manually creating of a further Calibration Document for a DUT is locked for 3 months.

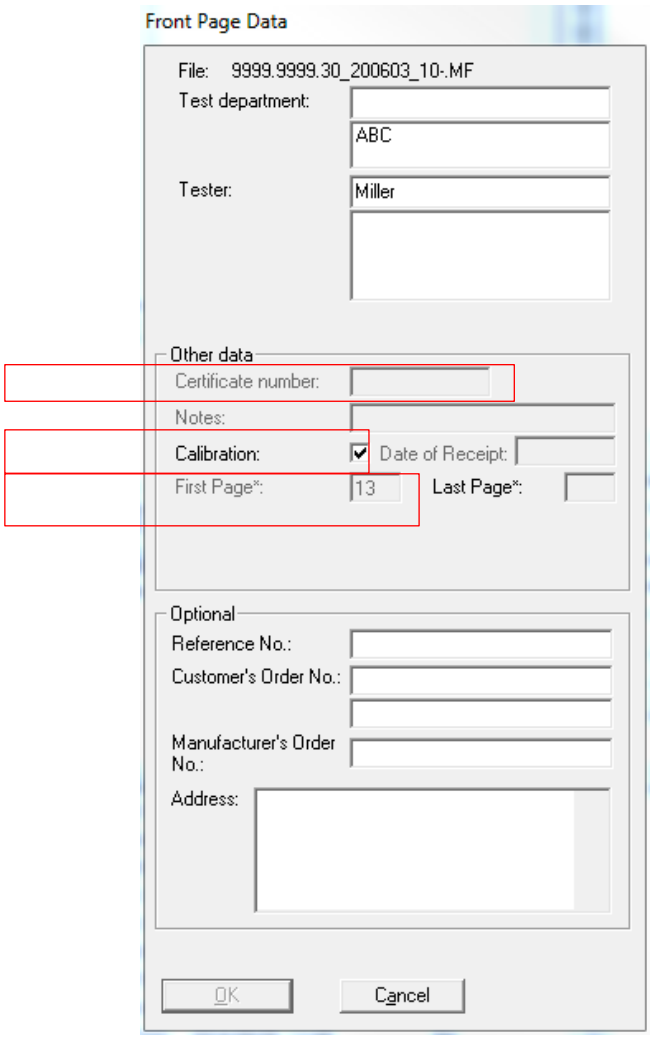
Advantage of this methode for the Calibration Document Part1:

- ***Calibration method*** (synonyms: Calibration Instruction, Kalibrieranweisung, Test Document) identically with the TestDocument of the TestProgram.
- ***Date of Calibration*** identically with the date of finalising of the Calibration on the TestSystem
- Total number of the pages of the Calibration Document (Part1 + Part2) will be calculated automatically
- ...

Advantage of this methode for the Calibration Document Part2 (DCV):

- automatically calculated page offset
- Certificate Number will be displayed on the report pages header
- Redundant information will hidden on the first report page and the header of the following report pages

- “Certificate number” controlled by G5 (getting from KSD)
- To check “Calibration” within the Front Page Data Editor is only necessary if “Calibration necessary” is not configured in the right way inside the POP database.
- First Page calculated by G5



Precondition: TWEAK Settings:

- Connect to KSD: Check Connect to KSD
- Certificate Creation: Check Automatic certificate creation
- Working Standards: Check/Uncheck Display in customer report
- Extended Front Page Data: Check “Use extended front page data” only if also a Re-Calibration should be done on this TestSystem.

Additional TWEAK Settings:

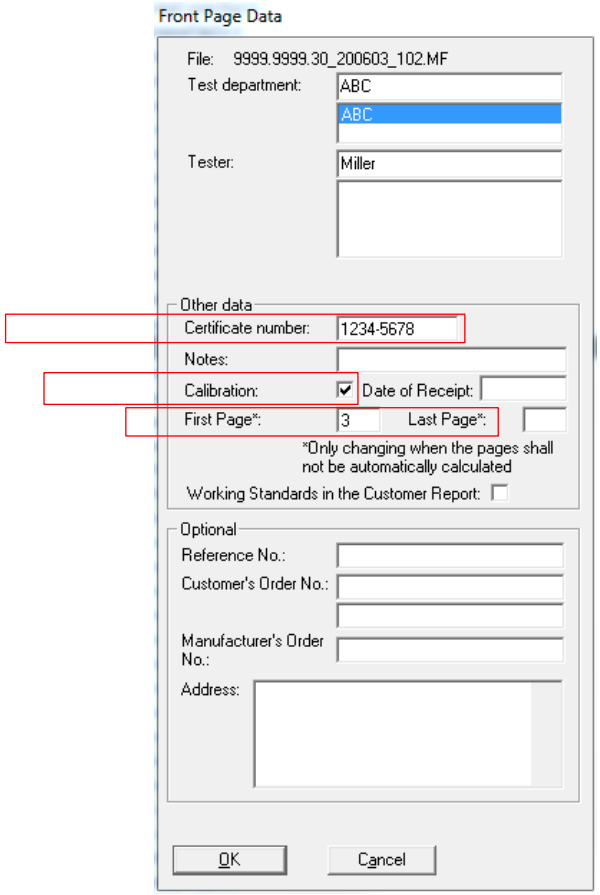
- Test Documentation Verification: Check Automatic test documentation verification (PDM Plausibility-check)
  (Synonyms: Product Description (R&S) Calibration Instruction (KSD))

3.16.1.2 Calibration Document controlled by SAP or by the User

Automatically creation of a Calibration Document for a Re-Calibration (Test Mark "**2**") controlled by SAP or manually by the User.

Inside the G4/G5 the user have to do the something concerning the Calibration Document within the Front Page Data Editor:

- Enter the Calibration Certificate No. from KSD in the field "Certificate number"
- Check Checkbox Calibration
- Enter First Page*
  *(Only changing when the pages shall not be automatically calculated)



Attention: Test Document (Product Description) (see first page of the Complete Report) must be always identically with the Calibrations Instruction (see KSD) from the Calibration Document

3.16.2 R&S Tool PMV for creating a Testing Configuration

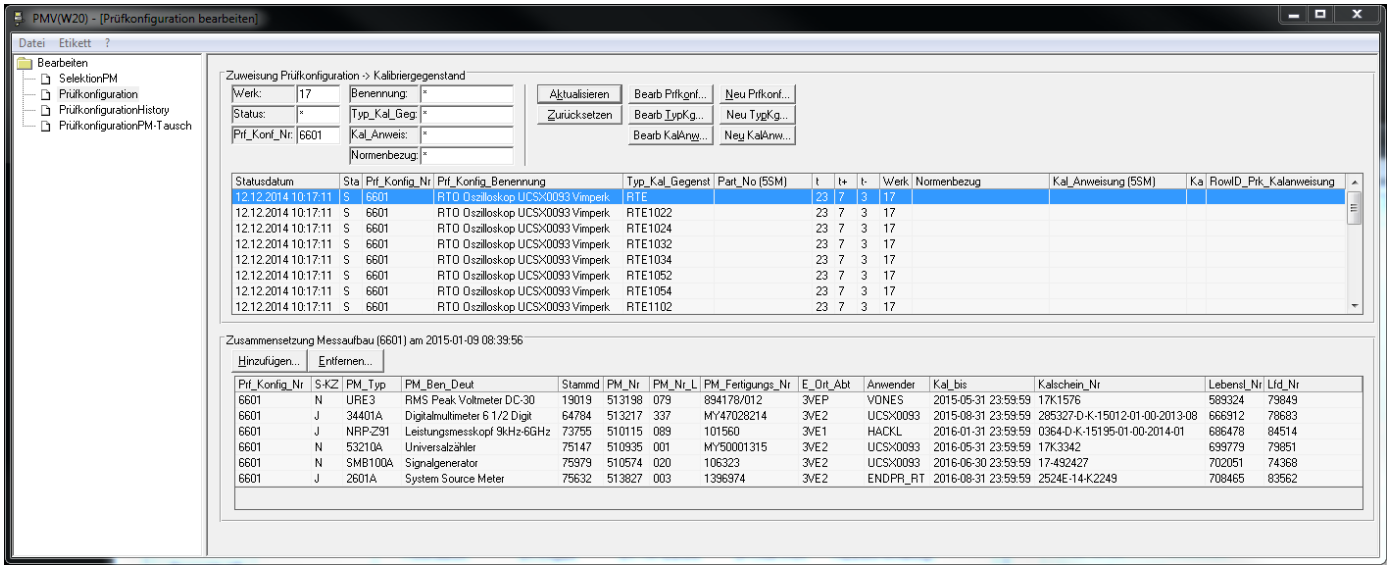
With the tool PMV you can create a Testing Configuration (and something else).

The Tool exists within the “Menükarte”.

A Testing Configuration based on a Calibration Description (Kalibrierbeschreibung) written by a TestProgramDeveloper and will be created by the Calibration Laboratory. Modifications during the life cycle of a TestSystem will be done by the Test Department.

Only the significant instruments (see *S-KZ* „J“) will be displayed in the Calibration Document as „Working Standards used“

Tool PMV:
e.g.: Testing Configuration “Prf_Konfig_Nr:” *6601*



(Search key: Testing Configuration, Prüfkonfiguration, significant, Working Standards)

3.16.3 Calibration Document CD (without results)

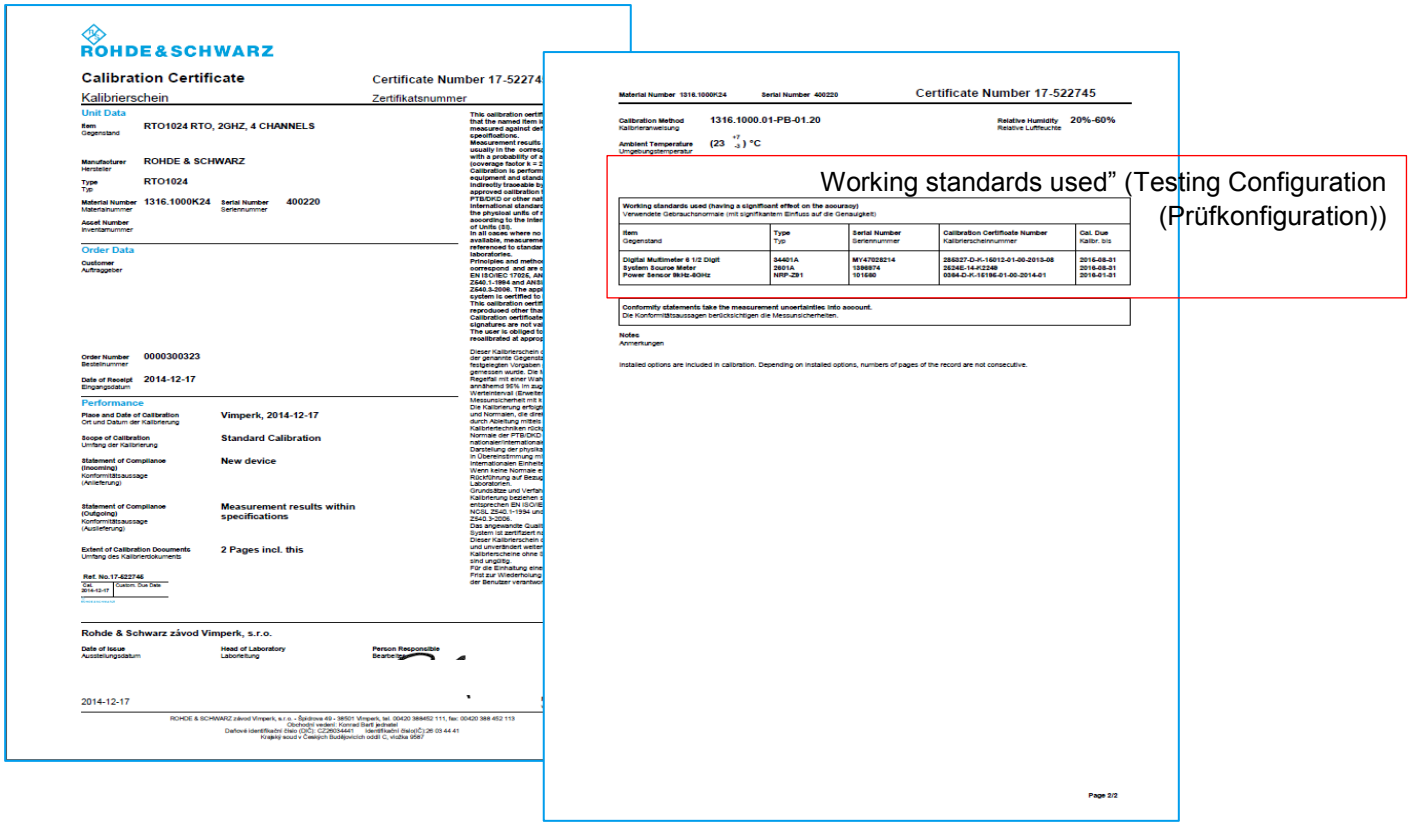
The document includes only the Calibration Certificate.

Format of file name:

CD_<MaterialNo>_<SerialNo>_<Certificate No>-C.PDF
(obsolete: CC_<MaterialNo>_<SerialNo>_<date>-<time>_1.PDF)

TWEAK setting (empty for R&S Memmingen): PDF Repository: Certificate File Name: CC_<MaterialNumber>_<SerialNumber>_<LastTestDateAndTime>_<CertificateType>.PDF

Calibration Certificate generated by KSD:
page 1of 2 and 2 of 2



3.16.4 Calibration Document CD (with results)

The document includes the Calibration Certificate and the Documented Calibration Values (DCV).

Format of file names:

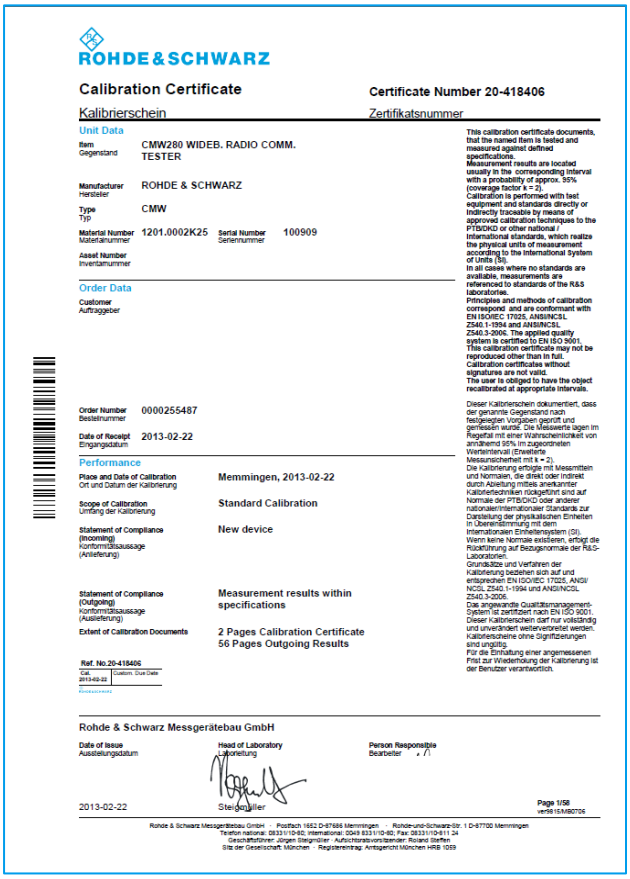
CD_<MaterialNo>_<SerialNo>_<Certificate No>.PDF
(obsolete: CC_<MaterialNo>_<SerialNo>_<date>-<time>_2.PDF and
TR_<MaterialNo>_<SerialNo>_1<TemperatureIndex><TestMark>.PDF)

TWEAK setting (empty for R&S Memmingen): PDF Repository: Certificate File Name:
CC_<MaterialNumber>_<SerialNumber>_<LastTestDateAndTime>_<CertificateType>.PDF

TWEAK setting (empty for R&S Memmingen) : PDF Repository: File Name:
TR_<MaterialNumber>_<SerialNumber>_<LastTestDateAndTime>_<Sequence><TemperatureIndex><TestMark>.PDF

3.16.5 Calibration Certificate (Part1 of Calibration Document)

Calibration Certificate: page 1 and 2 of n



ROHDE&SCHWARZ

Calibration Certificate — **Certificate Number 20-418406**

Kalibrierschein — Zertifikatsnummer

Unit Data

Item / Gegenstand: CMW280 WIDEB. RADIO COMM. TESTER

Manufacturer / Hersteller: ROHDE & SCHWARZ

Type / Typ: CMW

Material Number / Materialnummer: 1201.0002K25 — Serial Number / Seriennummer: 100909

Asset Number / Inventarnummer:

Order Data

Customer / Auftraggeber:

Order Number / Bestellnummer: 0000255487

Date of Receipt / Eingangsdatum: 2013-02-22

Performance

Place and Date of Calibration / Ort und Datum der Kalibrierung: Memmingen, 2013-02-22

Scope of Calibration / Umfang der Kalibrierung: Standard Calibration

Statement of Compliance (Incoming) / Konformitätsaussage (Anlieferung): New device

Statement of Compliance (Outgoing) / Konformitätsaussage (Auslieferung): Measurement results within specifications

Extent of Calibration Documents: 2 Pages Calibration Certificate, 56 Pages Outgoing Results

Ref. No.20-418406 — Cal. 2013-02-22 — Custom. Due Date

This calibration certificate documents, that the named item is tested and measured against defined specifications.
Measurement results are located usually in the corresponding interval with a probability of approx. 95% (coverage factor k = 2).
Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to the PTB/DKD or other national / international standards, which realize the physical units of measurement according to the International System of Units (SI).
In all cases where no standards are available, measurements are referenced to standards of the R&S laboratories.
Principles and methods of calibration correspond and are conformant with EN ISO/IEC 17025, ANSI/NCSL Z540.1-1994 and ANSI/NCSL Z540.3-2006. The applied quality system is certified to EN ISO 9001.
This calibration certificate may not be reproduced other than in full.
Calibration certificates without signatures are not valid.
The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein dokumentiert, dass der genannte Gegenstand nach festgelegten Vorgaben geprüft und gemessen wurde. Die Messwerte lagen im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% im zugeordneten Wertеintervall (Erweiterte Messunsicherheit mit k = 2).
Die Kalibrierung erfolgte mit Messmitteln und Normalen, die direkt oder indirekt durch Ableitung mittels anerkannter Kalibriertechniken rückgeführt sind auf Normale der PTB/DKD oder anderer nationaler/internationaler Standards zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem internationalen Einheitensystem (SI).
Wenn keine Normale existieren, erfolgt die Rückführung auf Bezugsnormale der R&S-Laboratorien.
Grundsätze und Verfahren der Kalibrierung beziehen sich auf und entsprechen EN ISO/IEC 17025, ANSI/NCSL Z540.1-1994 und ANSI/NCSL Z540.3-2006.
Das angewandte Qualitätsmanagement-System ist zertifiziert nach EN ISO 9001.
Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Kalibrierscheine ohne Signifizierungen sind ungültig.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

Rohde & Schwarz Messgerätebau GmbH

Date of Issue / Ausstellungsdatum: 2013-02-22 — Head of Laboratory / Laborleitung: Steigenmüller — Person Responsible / Bearbeiter

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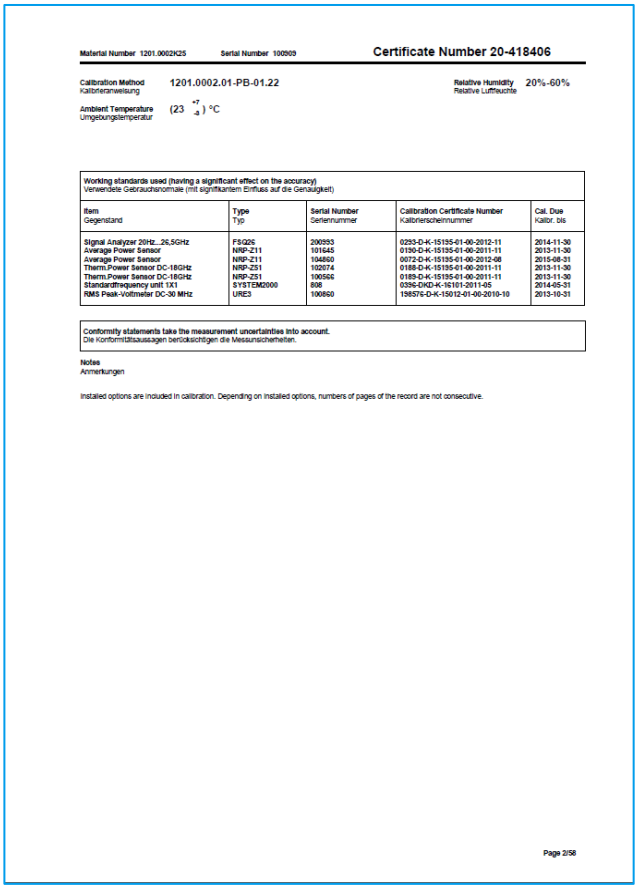

Material Number 1201.0002K25 — Serial Number 100909 — **Certificate Number 20-418406**

Calibration Method / Kalibrieranweisung: 1201.0002.01-PB-01.22

Relative Humidity / Relative Luftfeuchte: 20%-60%

Ambient Temperature / Umgebungstemperatur: (23 +7 -4) °C

Working standards used (having a significant effect on the accuracy) / Verwendete Gebrauchsnormale (mit signifikantem Einfluss auf die Genauigkeit)

Item / Gegenstand	Type / Typ	Serial Number / Seriennummer	Calibration Certificate Number / Kalibrierscheinnummer	Cal. Due / Kalibr. bis
Signal Analyzer 20Hz...26,5GHz	FSQ26	200593	0253-D-K-15135-01-00-2012-11	2014-11-30
Average Power Sensor	NRP-Z11	101645	0130-D-K-15135-01-00-2011-11	2013-11-30
Average Power Sensor	NRP-Z11	104660	0072-D-K-15135-01-00-2012-08	2015-08-31
Therm.Power Sensor DC-18GHz	NRP-Z51	102074	0188-D-K-15135-01-00-2011-11	2013-11-30
Therm.Power Sensor DC-18GHz	NRP-Z51	100566	0189-D-K-15135-01-00-2011-11	2013-11-30
Standardfrequency unit 1X1	SYSTEM2000	808	039S-DKD-K-16101-2011-05	2014-05-31
RMS Peak-Voltmeter DC-30 MHz	URE3	100860	196576-D-K-15012-01-00-2010-10	2013-10-31

Conformity statements take the measurement uncertainties into account.
Die Konformitätsaussagen berücksichtigen die Messunsicherheiten.

Notes / Anmerkungen

Installed options are included in calibration. Depending on installed options, numbers of pages of the record are not consecutive.

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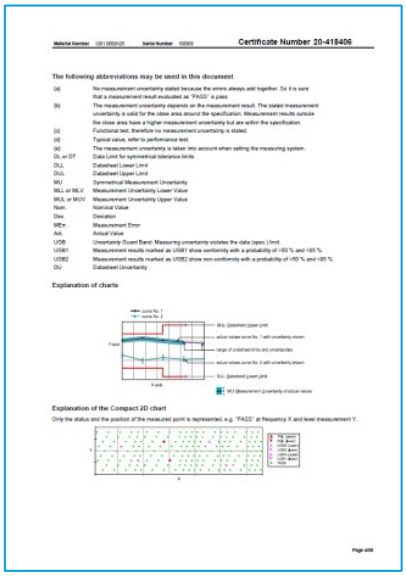
A page 3 like this with hints is only part of the Calibration Certificate if...

- there is no automatic connection to KSD or...
- not unchecked by the User or...
- not part of the TestReportTemplate



Material Number 1201.0002K25 — Serial Number 100909 — **Certificate Number 20-418406**

The following abbreviations may be used in this document

(a)	No measurement uncertainty stated because the errors always add together. So it is sure that a measurement result evaluated as "PASS" is pass.
(b)	The measurement uncertainty depends on the measurement result. The stated measurement uncertainty is valid for the close area around the specification. Measurement results outside the close area have a higher measurement uncertainty but are within the specification.
(c)	Functional test, therefore no measurement uncertainty is stated.
(d)	Typical value, refer to performance test.
(e)	The measurement uncertainty is taken into account when setting the measuring system.
DL or DT	Data Limit for symmetrical tolerance limits
DLL	Datasheet Lower Limit
DUL	Datasheet Upper Limit
MU	Symmetrical Measurement Uncertainty
MUL or MLV	Measurement Uncertainty Lower Value
MUL or MUV	Measurement Uncertainty Upper Value
Nom.	Nominal Value
Dev.	Deviation
MEr.	Measurement Error
Act.	Actual Value
UGB	Uncertainty Guard Band: Measuring uncertainty violates the data (spec.) limit.
UGB1	Measurement results marked as UGB1 show conformity with a probability of >50 % and <95 %.
UGB2	Measurement results marked as UGB2 show non-conformity with a probability of >50 % and <95 %.
DU	Datasheet Uncertainty

Explanation of charts

Explanation of the Compact 2D chart

Only the status and the position of the measured point is represented, e.g. "PASS" at frequency X and level measurement Y.

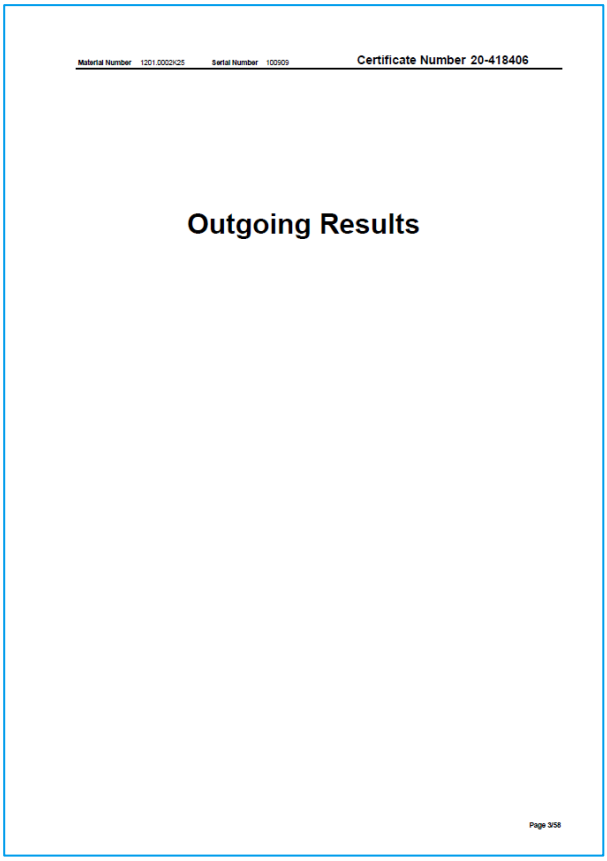
3.16.6 Documented Calibration Values DCV (Part2 of Calibration Document)

Format of file name:

CD_<MaterialNo>_<SerialNo>_<Certificate No>.PDF (Part2)
(obsolete: TR_<MaterialNo>_<SerialNo>_<date>-<time>_1<TemperatureIndex><TestMark>.PDF)

TWEAK setting (empty for R&S Memmingen) : PDF Repository: File Name: TR_<MaterialNumber>_<SerialNumber>_<LastTestDateAndTime>_<Sequence><TemperatureIndex><TestMark>.PDF

1. Cover Page of DCV: (normally 3rd page)



Material Number 1201.0002K25 Serial Number 100909 Certificate Number 20-418406

Outgoing Results

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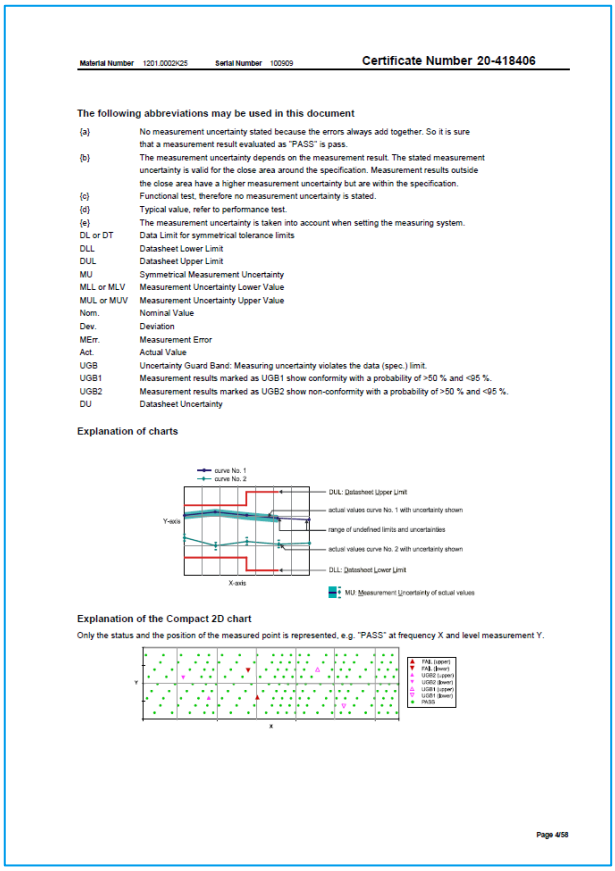
2. Hints (normally 4th page)



Material Number 1201.0002K25 Serial Number 100909 Certificate Number 20-418406

The following abbreviations may be used in this document

(a)	No measurement uncertainty stated because the errors always add together. So it is sure that a measurement result evaluated as "PASS" is pass.
(b)	The measurement uncertainty depends on the measurement result. The stated measurement uncertainty is valid for the close area around the specification. Measurement results outside the close area have a higher measurement uncertainty but are within the specification.
(c)	Functional test, therefore no measurement uncertainty is stated.
(d)	Typical value, refer to performance test.
(e)	The measurement uncertainty is taken into account when setting the measuring system.
DL or DT	Data Limit for symmetrical tolerance limits
DLL	Datasheet Lower Limit
DUL	Datasheet Upper Limit
MU	Symmetrical Measurement Uncertainty
MLL or MLV	Measurement Uncertainty Lower Value
MUL or MUV	Measurement Uncertainty Upper Value
Nom.	Nominal Value
Dev.	Deviation
MErr.	Measurement Error
Act.	Actual Value
UGB	Uncertainty Guard Band: Measuring uncertainty violates the data (spec.) limit.
UGB1	Measurement results marked as UGB1 show conformity with a probability of >50 % and <95 %.
UGB2	Measurement results marked as UGB2 show non-conformity with a probability of >50 % and <95 %.
DU	Datasheet Uncertainty

Explanation of charts

Explanation of the Compact 2D chart

Only the status and the position of the measured point is represented, e.g. "PASS" at frequency X and level measurement Y.

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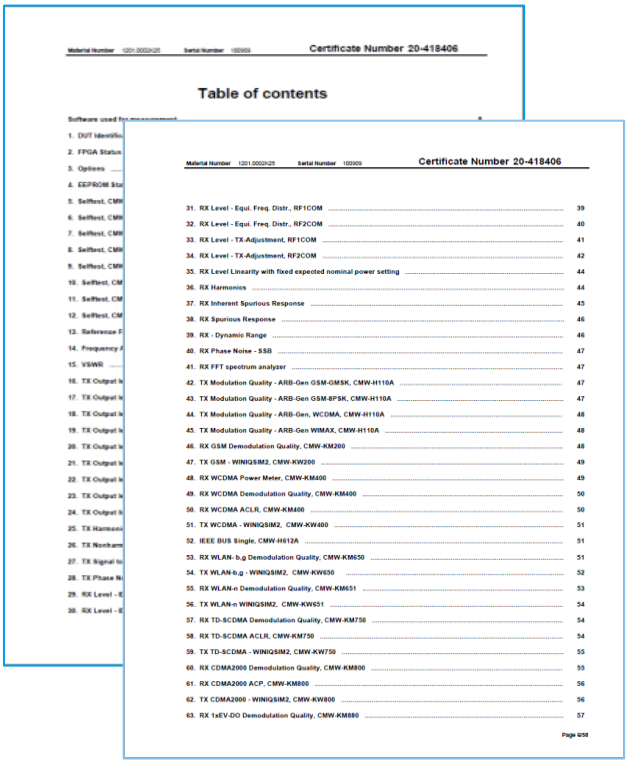
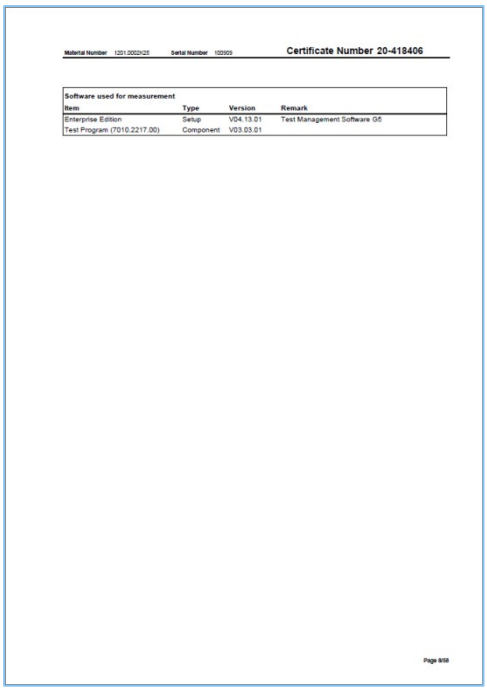
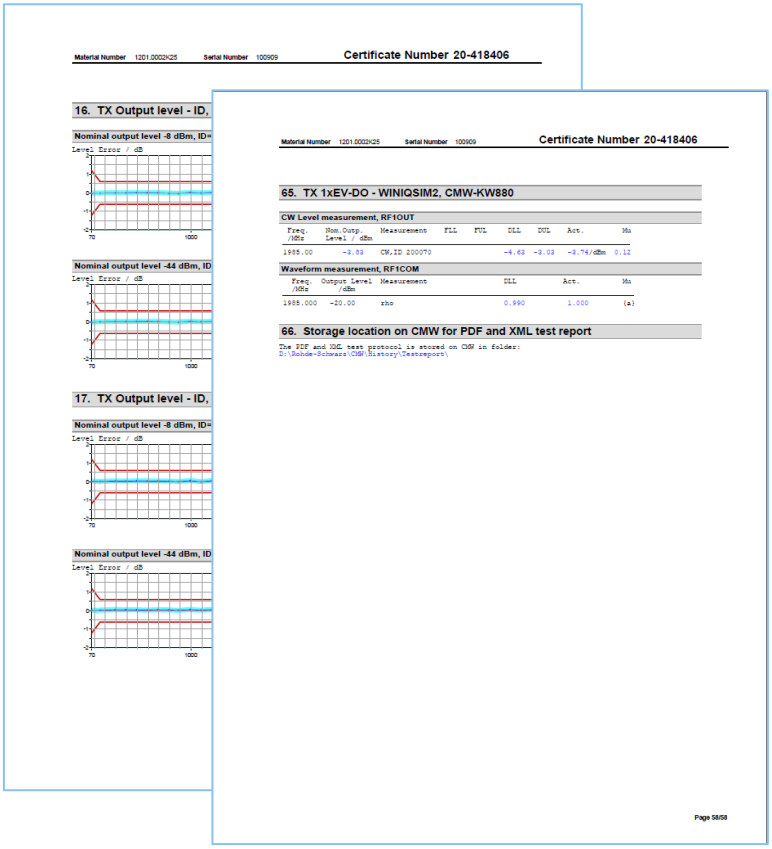
3. Table of contents (normally begins with the 5th page)



4. Software used for measurement (after table of contents)



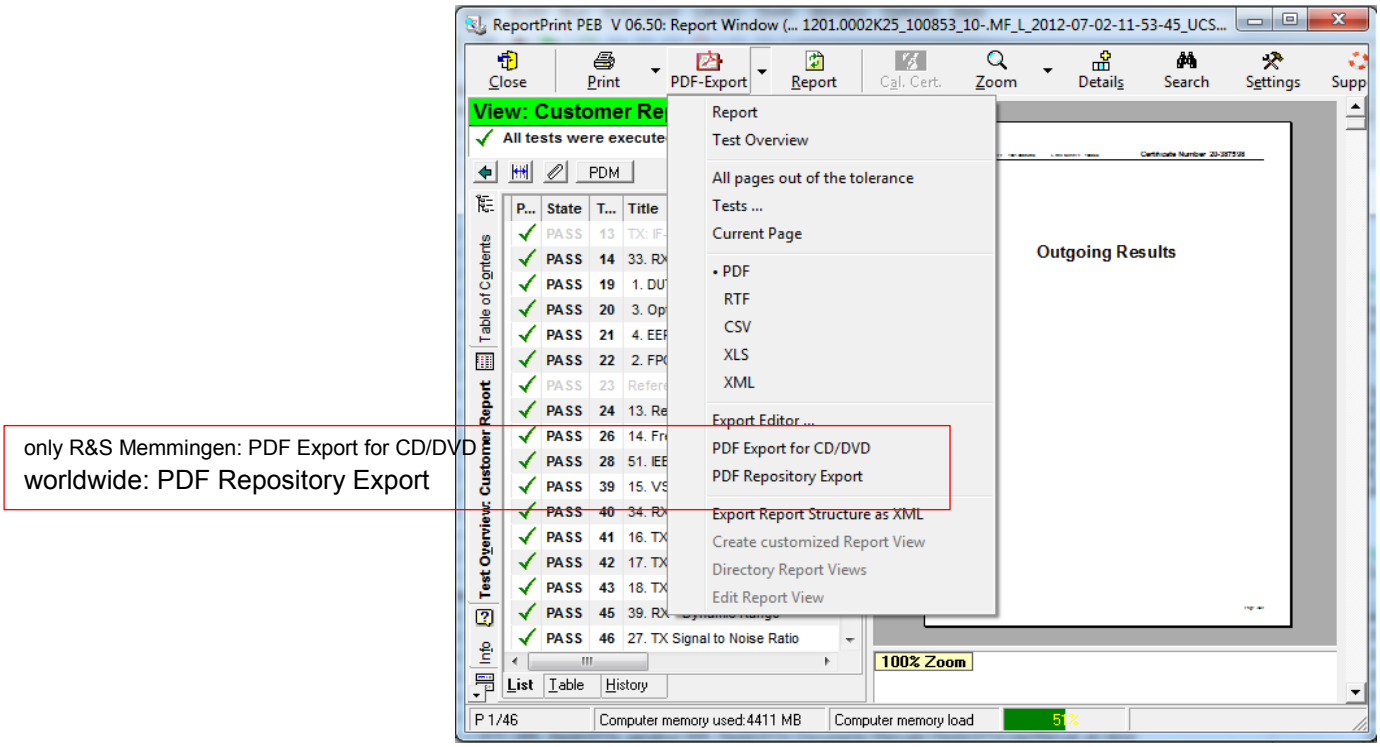
5. Results (... until the end of the Calibration Document)



3.16.7 Troubleshooting for missing Calibration Documents

Normally you get the Calibration Documents automatically if it is configured by the TWEAK (see below). But if the automatic process is interrupted you can create the Calibration Documents by hand if you start the “View” Customer Report, selecting “PDF-Export” and click on “PDF Repository Export”.

For R&S Memmingen it is also possible to select a Measurement File with the ReportPrint (Protokolldruck) and press the button “PDF for DVD”)



<u>Precondition:</u> TWEAK configuration: (all entries are empty for R&S Memmingen)

PDF Repository:

- <Path> for all Calibration Documents
- <Certificate File Name> (for Calibration Document without results and Calibration Document with results (Part1)).
  A substitute <CertificateNumber>
- <File Name> for DCV (Calibration Document Part2)

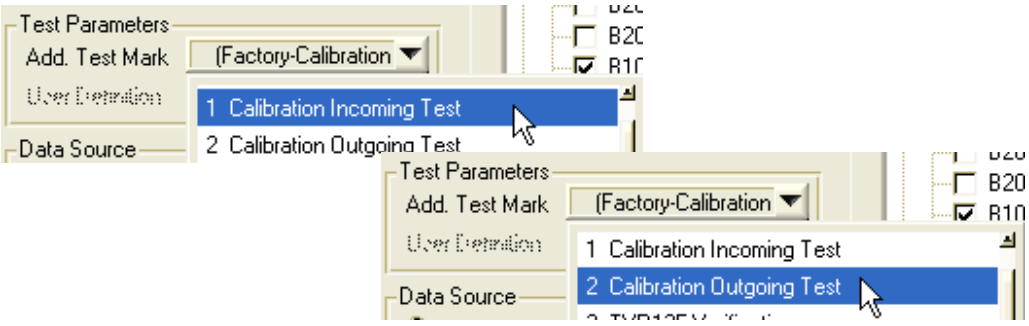
4 Extended Features of the TM G5

4.1 Using the Additional Test Mark

The additional Test Mark is used to distinguish different measurement files of a device. The different measurement files are required to document different test conditions.

For example, for a normal DUT calibration sequence an incoming test and outgoing test of a DUT has to be performed. For this purpose the Additional Test Marks 1 (Incoming) and 2 (Outgoing) have to be set.

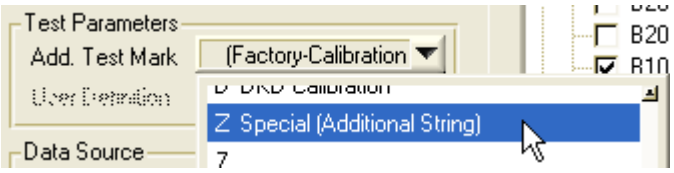
4. Open the Configuration Database Editor (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).
5. Open the Additional Test Mark list (see section 3.5.2 "Filling in Test specific Data" [p. 46]).
6. Select the required Test Mark, for example the test mark incoming and outgoing tests.



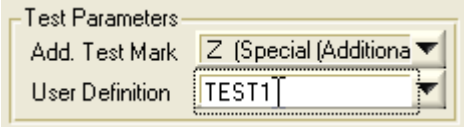
The list of predefined Test Marks depend on the current Test System Mode (see section 4.11 "Test System Mode" [p. 148]). At the end of this section a Description of the predefined Test Marks is listed.

In some cases it might be necessary to create additional measurement files to document specific test environments. For example if the same device should be tested with different modules or in different test environments.

For this purpose a special additional test mark has to be used:



► Enter additional text to identify the background of the special test or the special test environment:



For this user definition only normal letters and numbers are possible. Special characters will be ignored.

Additional Test Mark Description

Additional Test Mark	Description
-	Factory test
0	First test after DUT assembly
1	Incoming test
2	Outgoing test
3	TVR135 Verification (only Rohde & Schwarz internal)
4	TVR135 Incoming test (only Rohde & Schwarz internal)
5	TVR135 Outgoing test (only Rohde & Schwarz internal)
6	TVR136 loop test (only Rohde & Schwarz internal)
B	Burn in test
C	German calibration service (DKD) incoming test
D	German calibration service (DKD) outgoing test
E	Reserved
M	National standard incoming test
N	National standard outgoing test
P	Factory test before DUT customization
U	Reserved
W	Reserved
X	Extended test program
Y	Test report template overloading
Z	Test mark with additional free text

4.2 Working with Breakpoints

When fault finding on a DUT it is useful to have the ability to set breakpoints for certain conditions.

The different breakpoint modes can be combined as needed.

The Interrupt Panel (see section 3.3.7 "Interrupt Panel" [p. 34]) supports four breakpoint modes directly:

	Break on Error:	interrupts the execution when a measured value is not PASS
	Break on Test Point:	interrupts after each test point
	Break on Curve:	interrupts the execution after a curve has been finished
	Break on Test:	interrupts the execution after a complete block which may consist of several curves has been finished

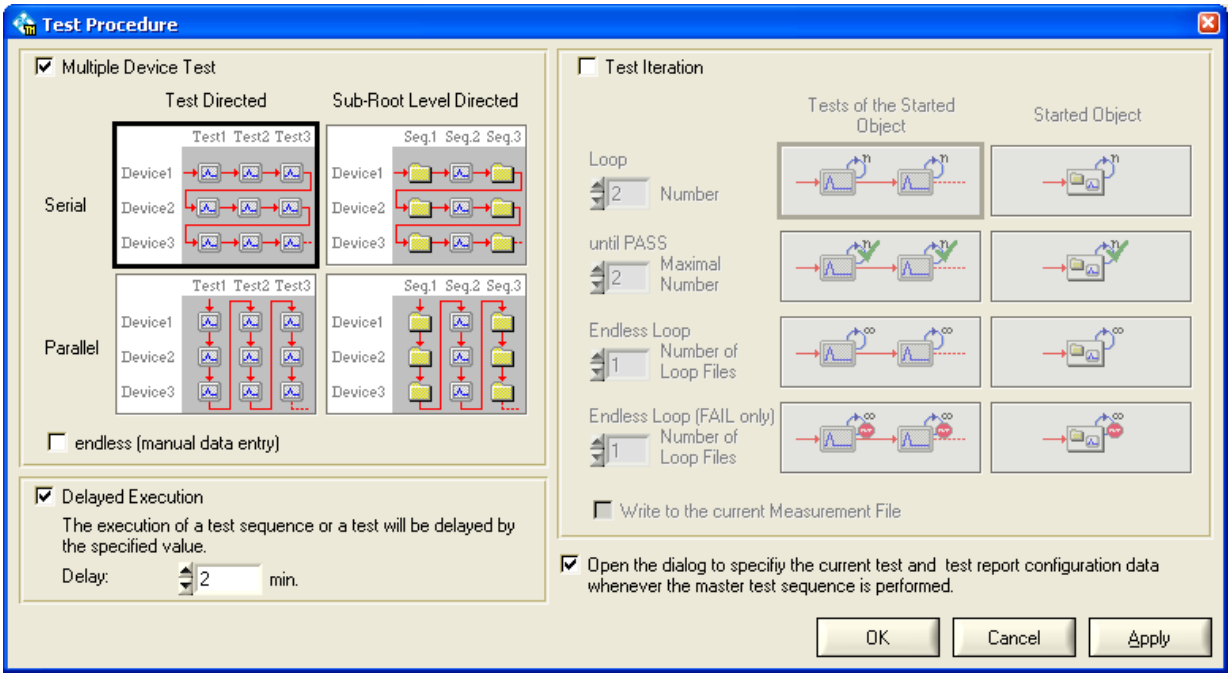
By use of the context menu, further breakpoints referring to events can be set.

Depending on theTM G5 version the additional breakpoint may be disabled.

Event	Description
Before Test Process	The execution is interrupted before the test process starts. This event is fired in any case.
Before Multi Device Test	The execution is interrupted before a multiple device tests will be started. This event will only be fired if the Multiple Device Testing Mode is switched on (see section 4.3.1 "Multiple Device Testing Mode" [p. 131]).
DUT Got Test Focus	The execution is interrupted when a device has become the test focus, i.e. when a device of the device list has been become the current device.
Before Test Sequence	The execution is interrupted before a test sequence will be started.

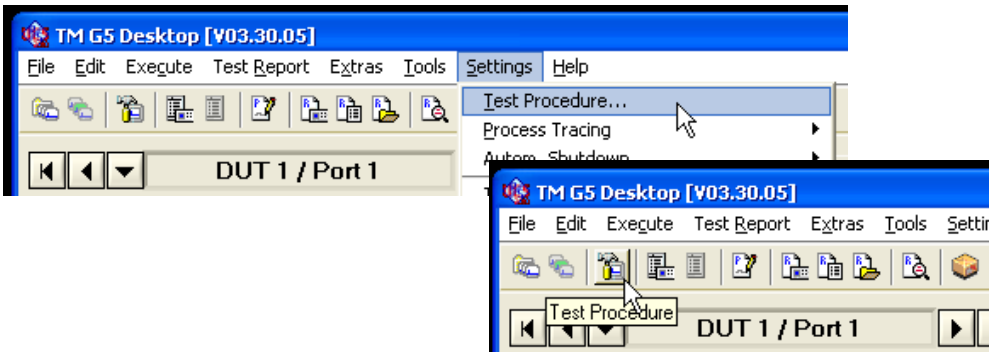
Event	Description
Before Test Cycle	The execution is interrupted before a cycle of a test is started. This event will only be fired if the a child test is defined. For further information see section 4.12 "Test Family and Test Cycles" [p. 149].
Before Test	The execution is interrupted before a test is started.
Execute Test	The execution is interrupted when a test is started.
After Test	The execution is interrupted after a test has been completed.
After Test Cycle	The execution is interrupted after the cycle of a test has been completed. This event will only be fired if the a child test is defined. For further information see section 4.12 "Test Family and Test Cycles" [p. 149].
After Test Sequence	The execution is interrupted after a test sequence has been completed.
DUT Lost Test Focus	The execution is interrupted when a device has lost the test focus.
After Multi Device Test	The execution is interrupted after a multiple device tests has been completed. This event will only be fired if the Multiple Device Testing Mode is switched on (see section 4.3.1 "Multiple Device Testing Mode" [p. 131]).
After Test Process	The execution is interrupted after the test process has been completed. This event is fired in any case.

4.3 Definition of the Test Procedure



By means of the Test Procedure dialog the behaviour of the test procedure can be defined. The properties of the Multiple Device Test, the Test Iteration and the Delayed Execution are set in this dialog.

► Use the "Test Procedure" command of the menu bar or "Test Procedure" button of the toolbar to open the "Test Procedure" dialog.



The accessibility of the test procedure properties depends on the Test Program which can disable these properties.

4.3.1 Multiple Device Testing Mode (only with scanner extension)

The Multiple Device Testing Mode is required only if the test system is used in combination with a scanner extension. On a scanner system several DUTs can be connected to the base system automatically. Therefore it is necessary to connect and to define the data for more than one device before starting the automatic scanner test.

Proceed as follows to add a new devices:

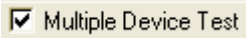
7. Open the Configuration Database Editor (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).
8. Click the "New Device" button to create a new device.

9. Fill in the DUT Specific Data (see section 3.5.1 "Filling in DUT specific Data" [p. 44]).
10. Click the "Apply" button to confirm the data (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).

Use the icon to remove a device.

To activate the multiple device testing mode the following setting has to be made:

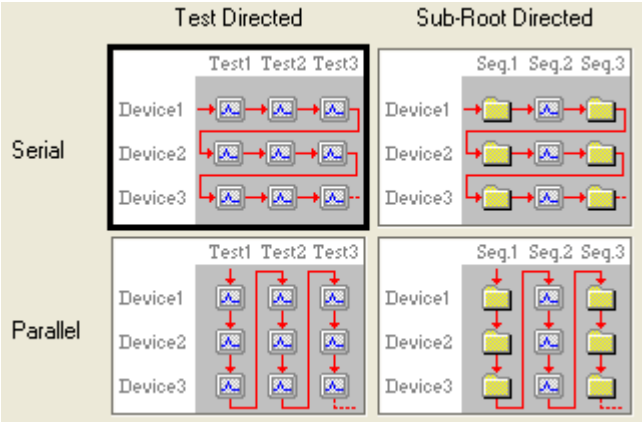
11. Open the Test Procedure Dialog (see section 4.3 "Definition of the Test Procedure" [p. 130]).
12. Switch on the "Multiple Device Test".



If the Test Program runs on a non scanner test system this mode will be disabled by the Test Program normally.

The Multiple Device Testing Mode can also be switched on and off by the icon in the Status Line (see section 3.3.6 "Status Line" [p. 32]).

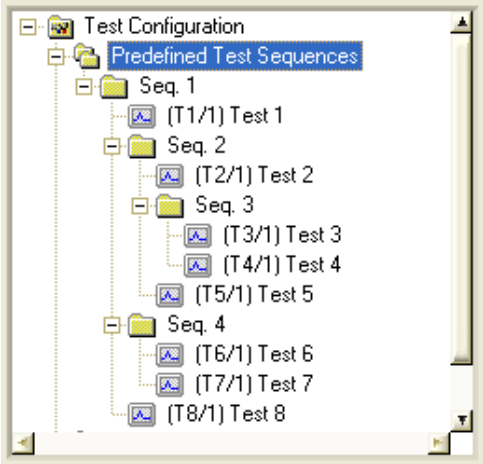
13. Select the Multiple Device Testing Mode.



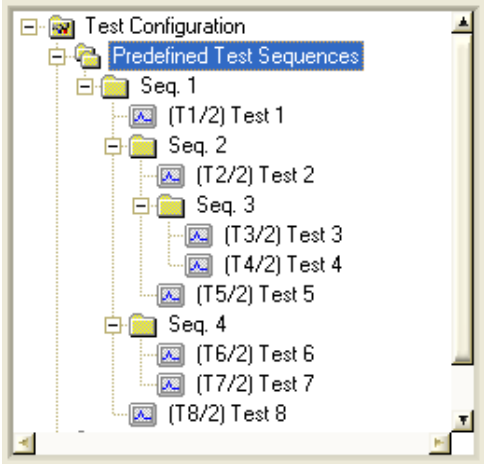
14. Click the "Apply" or "Ok" button to confirm the data.

The example below is used to describe the test behaviour depending on the several Multiple Device Testing Modes. For this purpose, two devices with identical test trees are used. The process descriptions list the test shortcuts, e.g. T2/1 for Test 2 of Device 1, in order of execution if the test sequence S1 is started.

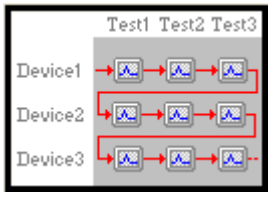
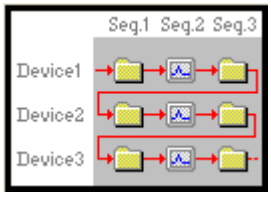
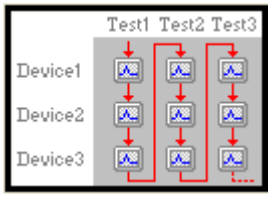
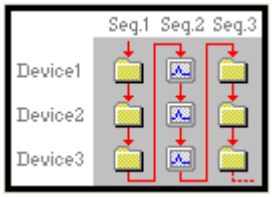
Test Tree: Device 1



Test Tree: Device 2



The test sequences beneath the predefined tree node Predefined Test Sequences are called Root Test Sequences. Hence, this tree level is called Root Level. The Root Level contains test sequences only.
The tree level beneath the Root Level is called Sub-Root Level. This level can contain both test sequences and tests. Two of the Multiple Device Testing Modes described below refer to this level.

Mode	Description	Process Description
Serial Test Directed 	All tests of a device will be executed first before the current device is changed.	**T1/1 → T2/1 → T3/1 → T4/1 → T5/1 → T6/1 → T7/1 → T8/1 → T1/2 → T2/2 → T3/2 → T4/2 → T5/2 → T6/2 → T7/2 → T8/2**
Serial Sub-Root Directed 	All sub-root level tests and test sequences of a device will be executed first before the current device is changed.	**T1/1 → T2/1 → T3/1 → T4/1 → T5/1 → T6/1 → T7/1 → T8/1 → T1/2 → T2/2 → T3/2 → T4/2 → T5/2 → T6/2 → T7/2 → T8/2**
Parallel Test Directed 	After each executed test the current device is changed.	**T1/1 → T1/2 → T2/1 → T2/2 → T3/1 → T3/2 → T4/1 → T4/2 → T5/1 → T5/2 → T6/1 → T6/2 → T7/1 → T7/2 → T8/1 → T8/2**
Parallel Sub-Root Directed 	After each executed sub-root level test and test sequence the current device is changed.	**T1/1 → T1/2 → T2/1 → T3/1 → T4/1 → T5/1 → T2/2 → T3/2 → T4/2 → T5/2 → T6/1 → T7/1 → T6/2 → T7/2 → T8/1 → T8/2**

Endless Option

The Endless Option is a particular form of the Multiple Device Testing Mode. This option defines how DUT specific Data (see section 3.5.1 "Filling in DUT specific Data" [p. 44]) can be entered while a test is running and the duration of the test procedure.

The accessibility and the mode of the Endless Option is configured by the related Test Program. The user is only able to activate or de-activate the option.

Following table lists the 3 Endless Option modes:

Mode	Description
☐ endless (manual/automatic data entry)	The Endless Option is disabled. No DUT data can be entered while a test is running.
☑ endless (manual data entry)	DUT data can be entered while a test is running. For that purpose, the context menu of the Device Summary Tab (see section 3.3.4.3 "Device Summary Tab" [p. 30]) has to be used. The test procedure runs until no test is found with the status invalid or untested. Only the started test or the tests of the started test sequence of any connected DUT are considered. Tests with a status aberrant from invalid and untested are skipped.
☑ endless (automatic data entry)	New DUT data are entered automatically while a test is running. All the time the scanner switches to a port the data of the connected DUT are checked. In case of data difference the DUT data are updated, because it is assumed that the previous DUT has been removed due to a completed performance test. The test procedure runs until no test is found with the status invalid or untested. Only the started test or the tests of the started test sequence of any connected DUT are considered. Tests with a status aberrant from invalid and untested are skipped.

4.3.2 Delayed Test Sequence Execution

It is possible to start a test sequence after an adjustable delay. This may be helpful if a DUT is still in it's warm-up phase. Then the test sequence can be automatically started after a certain delay to ensure that the DUT has completely warmed up.

Proceed as follows to activate the Delayed Execution:

15. Open the Test Procedure Dialog (see section 4.3 "Definition of the Test Procedure" [p. 130]).
16. Switch on the "Delayed Execution".

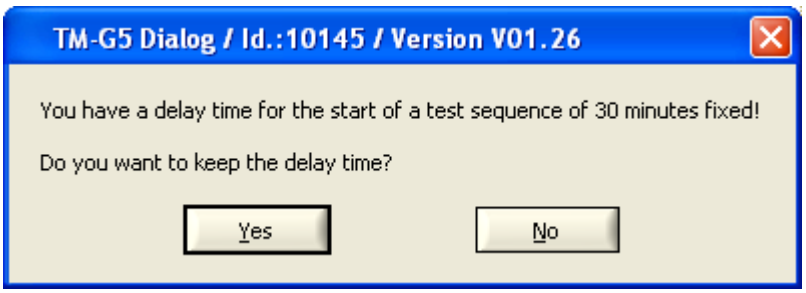
☑ Delayed Execution

The Delayed Test Sequence Execution can also be switched on and off by the ⌛ icon in the Status Line (see section 3.3.6 "Status Line" [p. 32]).

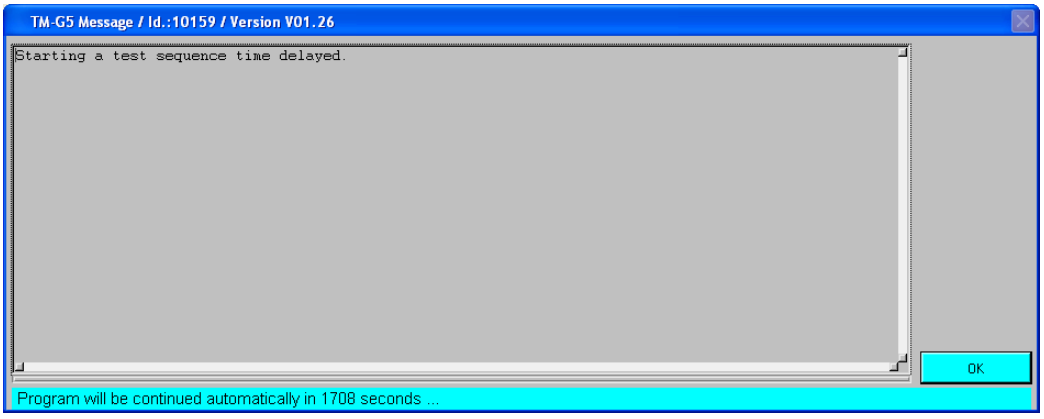
17. Define the time to delay:

18. Click the "Apply" or "OK" button to confirm the data.

An activated delay mode will cause every start of a test or test sequence to be delayed if the user confirms the message which appears after the start.



During the delay time the following panel will be displayed:



To cancel the delay press "OK". This causes the test or test sequence to be executed immediately.

4.3.3 Working with Test Iterations

The Test Iteration Mode is required for long term testing and debugging an individual test. For example, a test sequence can be repeated until the status of its tests are PASS.

To activate the test iterations mode the following setting has to be made:

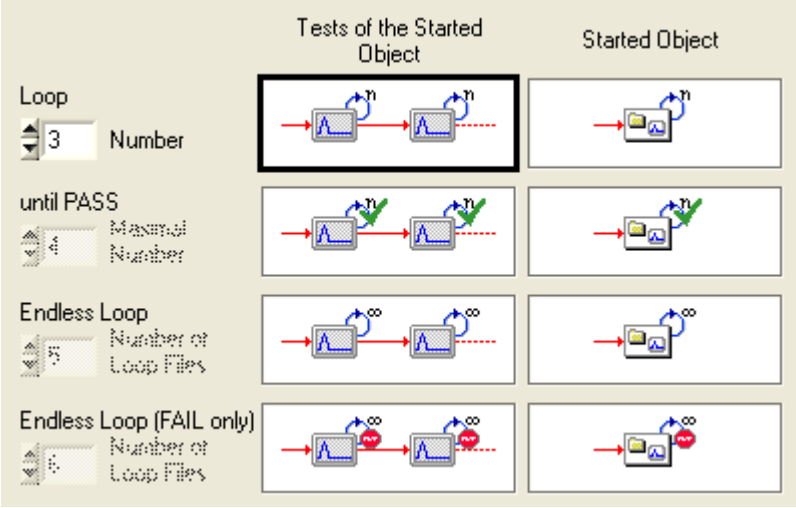
19. Open the Test Procedure Dialog (see section 4.3 "Definition of the Test Procedure" [p. 130]).

20. Switch on the "Test Iteration" Mode.

The Multiple Test Iteration Mode can also be switched on and off by the icon in the Status Line (see section 3.3.6 "Status Line" [p. 32]).

21. Use the "Write to the current Measurement File" checkbox to define where the test results are written to. Either the results are written into the current Measurement File or an individual Loop File for each test iteration.

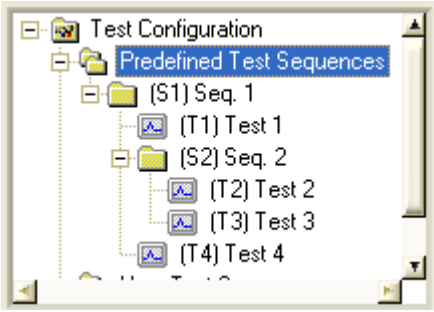
22. Select Test Iteration Mode.

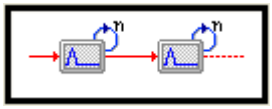
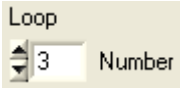
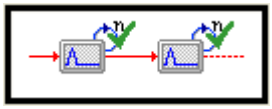
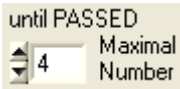


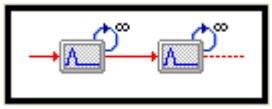
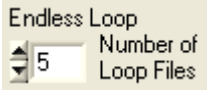
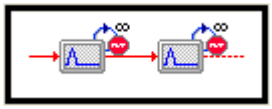
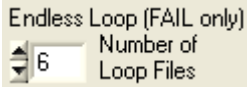
23. Use the "Apply" or "OK" button to confirm the data.

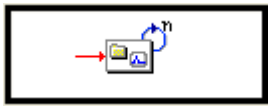
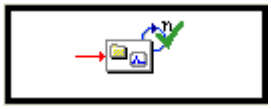
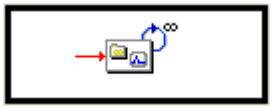
The example below is used to describe the test behaviour depending on the several Test Iteration Modes. The process descriptions list the test shortcuts, e.g. T2 for Test 2, in order of execution if the indexed test sequence or test is started.

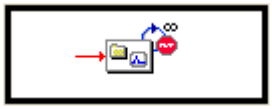
Test Tree



Mode	Description	Process Description
Loop Tests of the Started Object 	If a test sequence is started, the tests of this test sequence will be executed n times. If a test is started, this test will be executed n times. The number of iterations has to be defined. ► Use the numeric control to define the number of iterations  	**Seq. 1:** **T1 → T1 → T1 → T2 → T2 → T2 → T3 → T3 → T3 → T4 → T4 → T4** **Test 2:** **T2 → T2 → T2**
Loop until PASS Tests of the Started Object 	If a test sequence is started, the tests of this test sequence will be executed until the status of the individual tests is equal to PASS or the max. number of iterations will be reached. If a test is started, this test will be executed until the test status is equal to PASS or the max. number of iterations is reached. ► Use the numeric control to define the max. number of iterations  	**Seq. 1:** **T1 → T1** (Status: PASS) **→ T2 → T2 → T2 → T2 → T3** (Status: PASS)**→ T4** (Status: PASS) **Test 2:** **T2 → T2 → T2** (Status: PASS)

Mode	Description	Process Description
Endless Loop Tests of the Started Object 	If a test sequence is started, the tests of this test sequence will be executed permanently. The next test will be executed if the current test is terminated. If a test is started, this test will be executed permanently. If the measurement results are created in the loop directory the number of loop files has to be defined. ► Use the numeric control to define the number of loop files.  The numeric control is enabled only if the test results are written into Loop Files (see section 4.3.3 "Working with Test Iterations" [p. 135])	**Seq. 1:** **T1 → T1 → T1 → T1 → T1** (test terminated) **→ T2 → T2 → T2 → T2 → T2 → T2…** **Test 2:** **T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2…**
Endless Loop (FAIL only) Tests of the Started Object 	If a test sequence is started, the tests of this test sequence will be executed as long as the status of the individual tests are unequal to PASS. If a test is started, this test will be executed as long as the status of this test is unequal to PASS. If the measurement results are created in the loop directory the number of loop files has to be defined. ► Use the numeric control to define the number of loop files.  The numeric control is enabled only if the test results are written into Loop Files (see section 4.3.3 "Working with Test Iterations" [p. 130]).	**Seq. 1:** **T1 → T1 → T1 → T1 → T1 → T1** (Status: PASS) **→ T2** (Status: PASS) **→ T3** (Status: PASS) **→ T4 → T4 → T4 → T4 → T4 → T4 → …→ T4** (Status: PASS) **Test 2:** **T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → … → T2** (Status: PASS)

Mode	Description	Process Description
Loop Started Object 	The started object, test or test sequence, will be executed n times. The number of iterations has to be defined. ► Use the numeric control to define the number of iterations Loop 3 Number	**Seq. 1:** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4** **Test 2:** **T2 → T2 → T2**
Loop until PASS Started Object 	The started object, test or test sequence, will be executed until the status of the object is equal to PASS or the max. number of iterations is reached. ► Use the numeric control to define the max. number of iterations until PASSED 4 Maximal Number	**Seq. 1:** **T1** (Status: PASS) → **T2** → **T3** (Status: PASS) → **T4** (Status: PASS) → **T1** (Status: PASS) → **T2** (Status: PASS) → **T3** (Status: PASS) → **T4** → **T1** (Status: PASS) → **T2** (Status: PASS) → **T3** (Status: PASS) → **T4** (Status: PASS) **Test 2:** **T2 → T2 → T2 → T2**
Endless Loop Started Object 	The started object, test or test sequence, will be executed permanently. If the measurement results are created in the loop directory the number of loop files has to be defined. ► Use the numeric control to define the number of loop files. Endless Loop (FAIL only) 6 Number of Loop Files The numeric control is enabled only if the test results are written into Loop Files (see section 4.3.3 "Working with Test Iterations" [p. 135]).	**Seq. 1:** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → …** **Test 2:** **T2 → T2 → T2 → T2 →** **T2 → T2 → T2 → T2 →** **T2 → T2 → T2 → T2 →** **T2 → T2 → T2 → …**

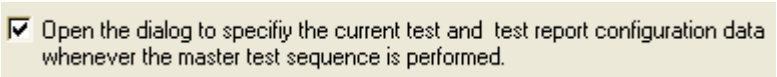
Mode	Description	Process Description
Endless Loop (FAIL only) Started Object 	The started object, test or test sequence, will be executed as long as the status of the object is unequal to PASS. If the measurement results are created in the loop directory the number of loop files has to be defined. ► Use the numeric control to define the number of loop files.  The numeric control is enabled only if the test results are written into Loop Files (see section 4.3.3 "Working with Test Iterations" [p. 135]).	**Seq. 1:** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 → T3 → T4 →** **T1 → T2 …→** **T1** (Status: PASS) → **T2 →** **T3** (Status: PASS) → **T4** (Status: PASS) → **T1** (Status: PASS) → **T2** (Status: PASS) → **T3** (Status: PASS) → **T4 →** **T1** (Status: PASS) → **T2** (Status: PASS) → **T3** (Status: PASS) → **T4** (Status: PASS) **Test 2:** **T2 → T2 → T2 → T2 →** **T2 → T2 → T2 → T2 →** **… → T2** (Status: PASS)

4.3.4 Automatic Configuration Database Update

In order to force the verification or the input of the configuration data (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]) before the "Master Test Sequence" is performed, the related option must be set.

Proceed as follows to activate the automatic input:

24. Open the Test Procedure Dialog (see section 4.3 "Definition of the Test Procedure" [p. 130]).
25. Switch on the option.

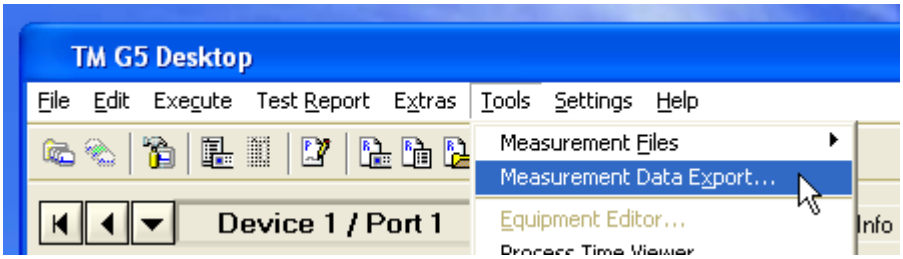


26. Click the "Apply" or "OK" button to confirm the setting.

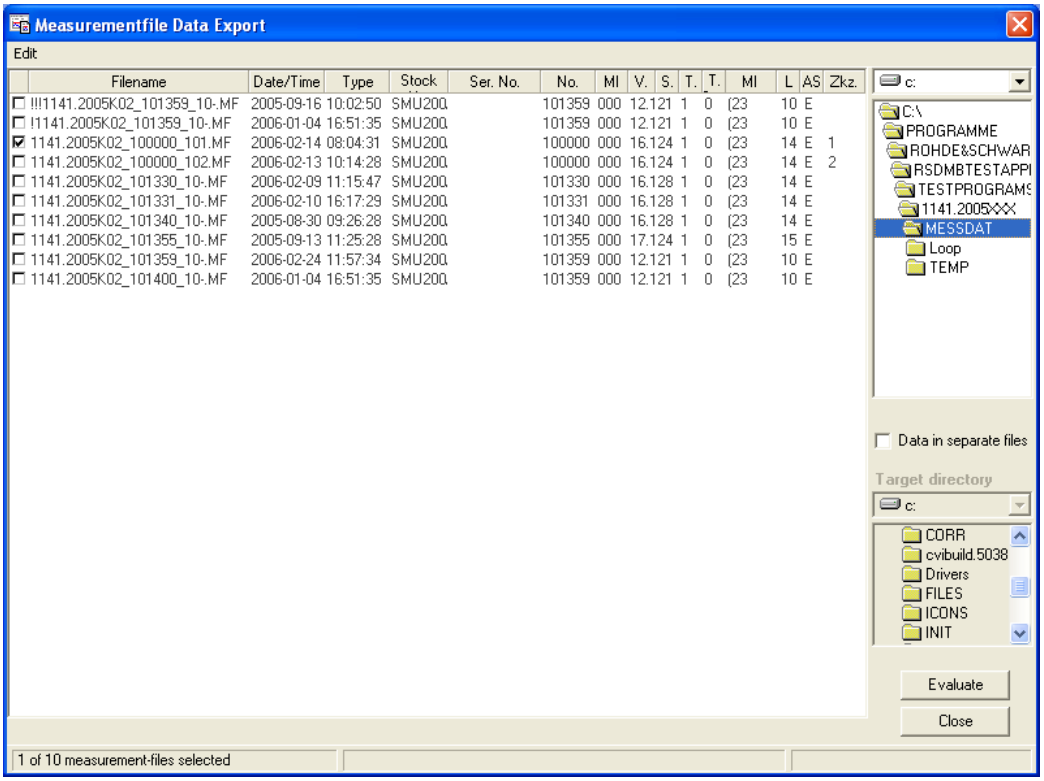
4.4 Exporting the Measurement Data

To process the test results with third-party application theTM G5 data format can be transformed into Comma Separated Value (csv) data format.

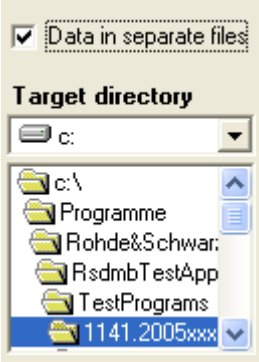
27. Use the "Measurement Data Export" command of the menu bar to open the "Measurement File Data Export" dialog.



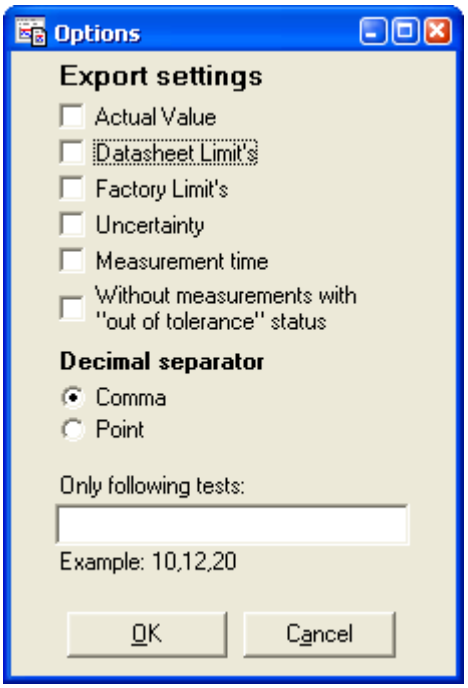
28. Select the measurement files which data you want to export.



29. Activate the "Data in separate files" checkbox to create a file for each test. A target directory has to be defined.



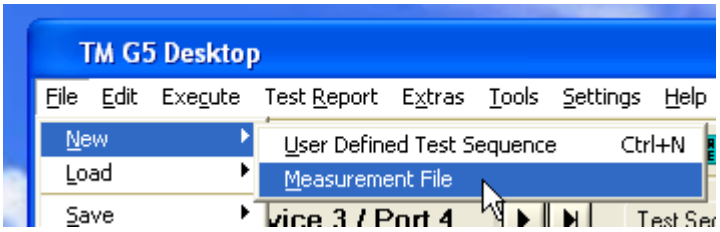
30. Click the "Evaluate" button to open an option dialog where the export data and the decimal separator can be selected.



31. Click the "OK" button to export the selected data. For this, the selected decimal separator is used.

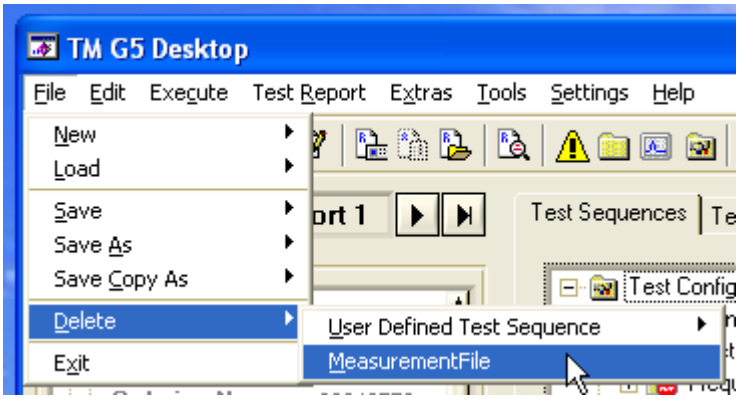
4.5 Creating and Deleting a Measurement File

32. Use the "New" command of the menu bar to create an empty measurement file. The data of the current device is used to build the measurement file name. For further information about the measurement file name see section 4.7 "Encoding of the Measurement File Name" [p. 144].



If the measurement file already exists a dialog will appear to confirm the overwriting of the measurement file. Original measurement file data will be lost.

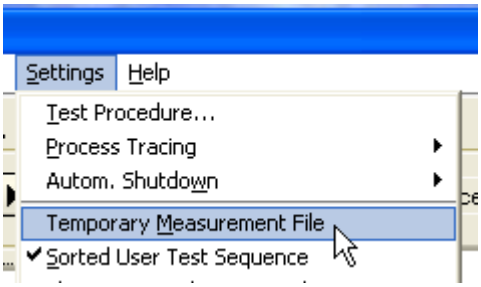
33. Use the "Delete" command of the menu bar to delete the measurement file of the current device.

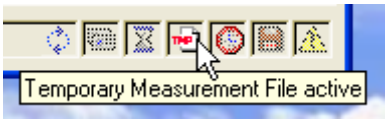


4.6 Creating a temporary Measurement File

During the test process of a device or printed circuit board it may be useful to write the test results to a temporary file, e.g. for troubleshooting.

► Set the "Temporary Measurement File" option of the menu bar to create a temporary measurement file. Alternatively, use the status line icon to toggle the "Temporary Measurement File" mechanism.





If the option "Temporary Measurement File" is activated, the measurement file name will turn into the `TEMP--.MF`. The normal file name encoding (see section 4.7 "Encoding of the Measurement File Name" [p. 144]) is switched off.

4.7 Encoding of the Measurement File Name

Standard Device Data Format:

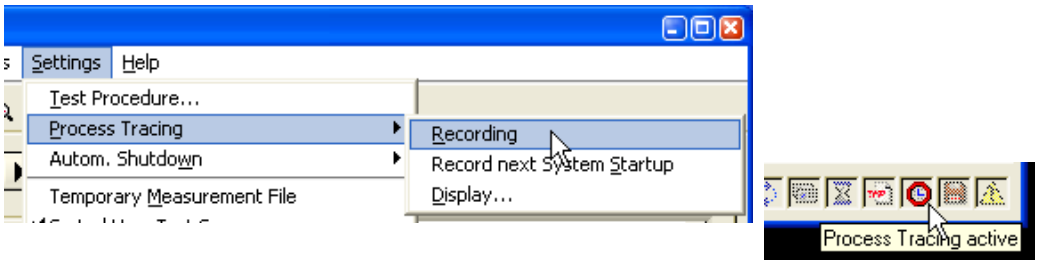
`1141.2005K02_100001_101.MF`

- abbreviation: **M**easurement **F**ile
- additional test mark (see section 3.5.2 "Filling in Test specific Data" [p. 46])
- temperature index (see section 3.5.2 "Filling in Test specific Data" [p. 46])
- reserved
- serial number
- material number

4.8 Tracing the Test Process

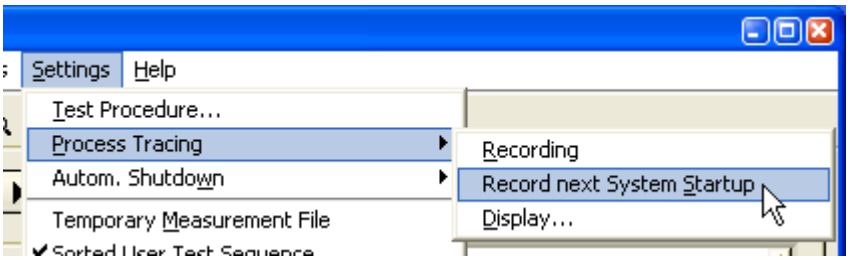
In order to analyze the system start-up and the time flow of a test sequence or a test the Process Tracing mechanism is used.

► Set the "Recording" option of the menu bar to activate the process tracing. Alternatively, use the status line icon to toggle the Recording mechanism.



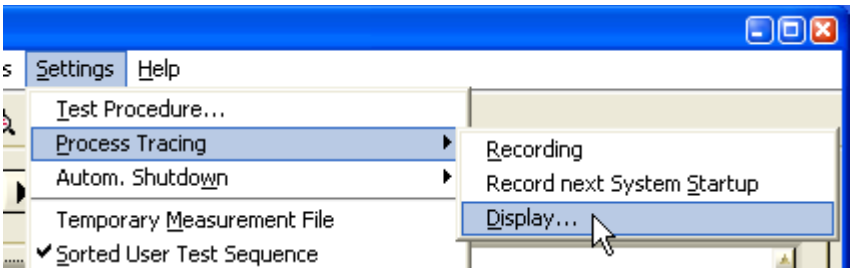
This option is automatically switched off after a test sequence or test is completed.

► Set the "Record next System Startup" option of the menu bar to record the next system start-up.



This option is automatically switched off and the "Recording" option is switched on after the system start-up is completed.

► Use the "Display" command of the menu bar to show the recoded process tracing.



The 7.4 "Process Tracing Viewer" [p. 177]) is used to analyze the recorded data. If this Viewer is not installed, a text file viewer can be used to display the data.

The process tracing information is stored in a semicolon separated text file with the name `PROCESS.PTF`. The file is located in the Test Program Init folder.

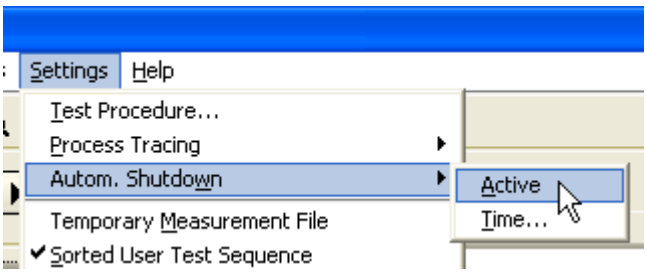
The data format is shown below.

ID	Designation	Start/Stop	Comment	Status	Test No.	Time/sec.	Time Stamp
206;	T11: Manual tests;	1;	;	;	11;	;	2006-03-01-14-26-13
302;	Delay;	1;	;	;	;	;	2006-03-01-14-26-13
302;	Delay;	2;	;	;	;	0,539;	2006-03-01-14-26-14
717;	Event handler;	1;	;	50002;	;	;	2006-03-01-14-26-14
717;	Event handler;	2;	;	50002;	;	0,03;	2006-03-01-14-26-14
180;	Block Status;	;	;	0;	11;	;	2006-03-01-14-26-17
206;	T11: Manual tests;	2;	Status 0;	;	11;	3,858;	2006-03-01-14-26-17

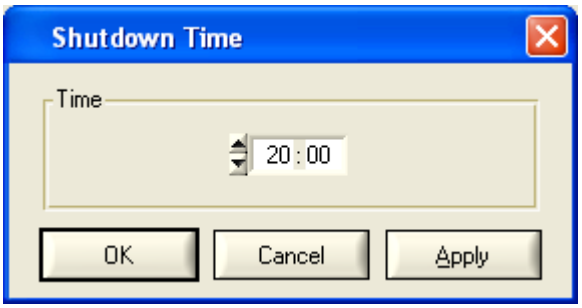
4.9 Automatic Test System Shutdown

The automatic shutdown mechanism is used to shutdown the test system at a specific time. Precondition therefore is that the test application is in the idle state, i.e. no test is running. Otherwise the system is shutdown as soon as the idle state is active.

► Set the "Active" option of the menu bar to activate the automatic test system shutdown.



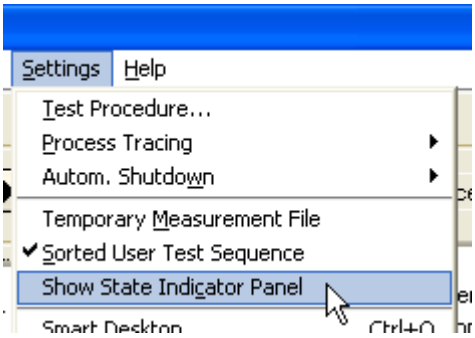
► Use the "Time" command of the menu bar to define the shutdown time by means of the following dialog.



4.10 State Indicator Panel

To visualize the current state of test application the State Indicator Panel can be used.

► Set the "Show State Indicator Panel" option of the menu bar to display the window.



► In order to hide the window use the window's close button or left click on the "Show State Indicator Panel" option of the menu bar.

The current state is indicated textual and color-code. The color-codes are equivalent to the codes used by the Test Application State Indicator (see section 7.11 "Test Application State Indicator" [p. 191]).

For a optimal illustration of the test application state, the State Indicator Panel is movable and sizeable. Additionally a right click on the window brings up the context menu which can be used to set the window as the topmost. A topmost window can't be covered by another windows.

4.11 Test System Mode

The Test System Mode affects theTM G5 Desktop. The visibility of controls and the contents of lists depend on this mode.

Following modes are available:

Test System Mode	Description
Factory Test	test system used for Rohde & Schwarz factory production
Antenna Test	test system used for antenna production
Calibration	test system used for calibration
Customizing	test system used for customizing a product
Burn in Test	test system used for burn in tests
DKD Calibration	test system used for DKD calibration
External Factory Test	test system used for external factory production
External Burn in Test	test system used for burn in test of an external production
Embedded	no test system is used, the tests are performed on the DUT
National Standard Calibration	test system used for national standard calibration
Turn On	test system used for the turn on test of the DUT

The Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) has to be used to change the Test System Mode.

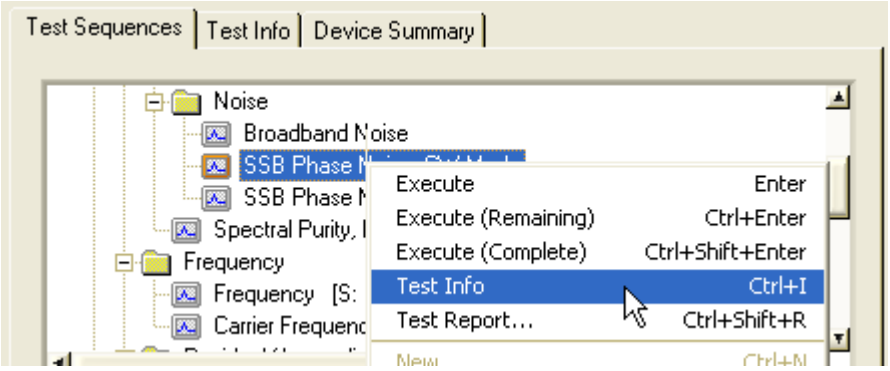
4.12 Test Family and Test Cycles

Tests can be combined to a so-called Test Family. A Test Family must consist of a Parent Test and at least one Child Test. The definition is done by the Test Program.

Only the Parent Test appears within a Test Sequence displayed in the "Test Sequences" Tab (see section 3.3.4.1 "Test Sequences Tab" [p. 26]). A Child Test is only shown in the Test Report Window (see section 3.12 "Test Report Window" [p. 77]). An orange frame color of the test icon indicates the Test Family membership.

In order to obtain further information about a Family Test look at the Info column of the "Test Info" Tab (see section 3.3.4.2 "Test Info Tab" [p. 28]).

► Right click on a test within the test sequence tree and use the "Test Info" command from the "Test Sequences" Tab context menu to activate the "Test Info" Tab and select the corresponding test.



The number of family members, i.e. the Parent Test plus the number of Children Tests, builds the number of Test Cycles.

For the Test Procedure, the maximum number of Test Cycles is very important. This maximum number is assigned by the biggest Test Family of all registered devices. This maximum number of Test Cycles will be run through if a Test Sequence is started. Depending on the Test Attributes a Test will be executed or skipped on the several Test Cycles. The current Test Cycle and the maximum number of Test Cycles are displayed in the "Device Summary" Tab (see section 3.3.4.3 "Device Summary Tab" [p. 30]).

The following Test Attributes are available and control the Test Procedure:

Test Attribute	Behaviour of the test within the Master Test Sequence	Behaviour of the test out of the Master Test Sequence
Default	The test is executed only on the first cycle of the current test process. On all further cycles the test will be skipped.	The test is executed in any case.
Parent	The test will be executed on the first cycle of the current device if the test state is untested or invalid.	The test will be executed if the test state is untested or invalid, or if the time of measurement is older than the time of measurement of a child test.
Child	The test will be executed on the subsequent cycle of the parent or previous child test if the test state is untested or invalid.	The test will be executed if the test state is untested or invalid, or if the time of measurement is older than the time of measurement of the parent test or another child test.
On Each Cycle of DUT or All Cycles	The test is executed on each cycle of the current device. If the max. cycle number of the current device is reached, the test will be skipped.	The test is executed in any case.
On Each Cycle or All Cycles Overall	The test is executed on each cycle of the Test Procedure.	The test is executed in any case.
On First Cycle of DUT or At First Cycle	The test is only executed on first cycle of the current device. On all further cycles the test will be skipped.	The test is executed in any case.
On First Cycle or At First Cycle Overall	The test is only executed on first cycle of the Test Procedure. On all further cycles the test will be skipped.	The test is executed in any case.

On Last Cycle of DUT or At Last Cycle	The test is only executed on the last cycle of the current device. Until the last cycle is reached the test is skipped.	The test is executed in any case.
On Last Cycle or At Last Cycle Overall	The test is only executed on the last cycle of the Test Procedure. Until the last cycle is reached the test is skipped.	The test is executed in any case.

4.13 Synchronization and Backup

If the complete test execution of a device or a printed circuit board is split up on several test systems, the test results have to be swapped between the these test systems. The Measurement File Synchronization provides this mechanism. After a test sequence is completed the test results are exchanged. For that purpose, a directory is used, the so-called synchronization directory.

The measurement file will be removed from the test systems and the synchronization directory if the file has been transferred to the measurement file repository. For further information see section 3.15 "Transfer of Measurement Files" [p. 107]. Thus, the user must have erase rights on the synchronization directory.

If the Measurement File Backup is active the current measurement file will be copied to the backup directory after a test sequence has completed.

The backup and the original measurement file will be removed if the file has been transferred to the measurement file repository. For further information see section 3.15 "Transfer of Measurement Files" [p. 107]. Thus, the user must have erase rights on the backup directory.

The condition of the Measurement File Synchronization and the Measurement File Backup is indicated by means of unique icons in the Status Line (see section 3.3.6 "Status Line" [p. 32]).

- Measurement File Synchronization is active
- Measurement File Backup is active
- Measurement File Synchronization and Measurement File Backup are inactive

The Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) has to be used to switch on the synchronization and the backup, and to define the corresponding paths.

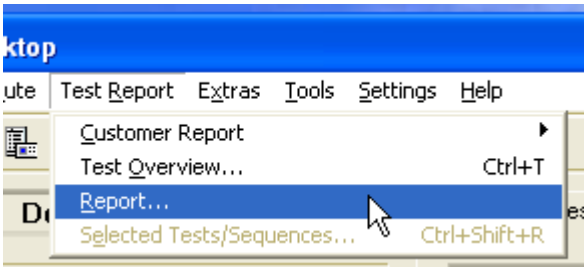
Measurement File Synchronization and Measurement File Backup are mutually exclusive. The Synchronization overrules the Backup.

4.14 Creating an individual Test Report

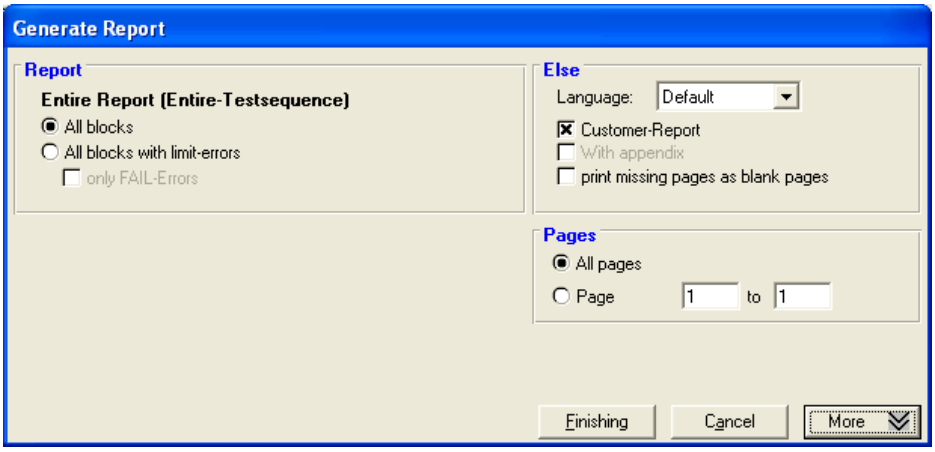
It is possible to create an individual Test Report by means of theTM G5. For that purpose, the user must define the contents of the report.

To create an individual Test Report:

34. Use the "Report" command to open the "Generate Report" dialog.

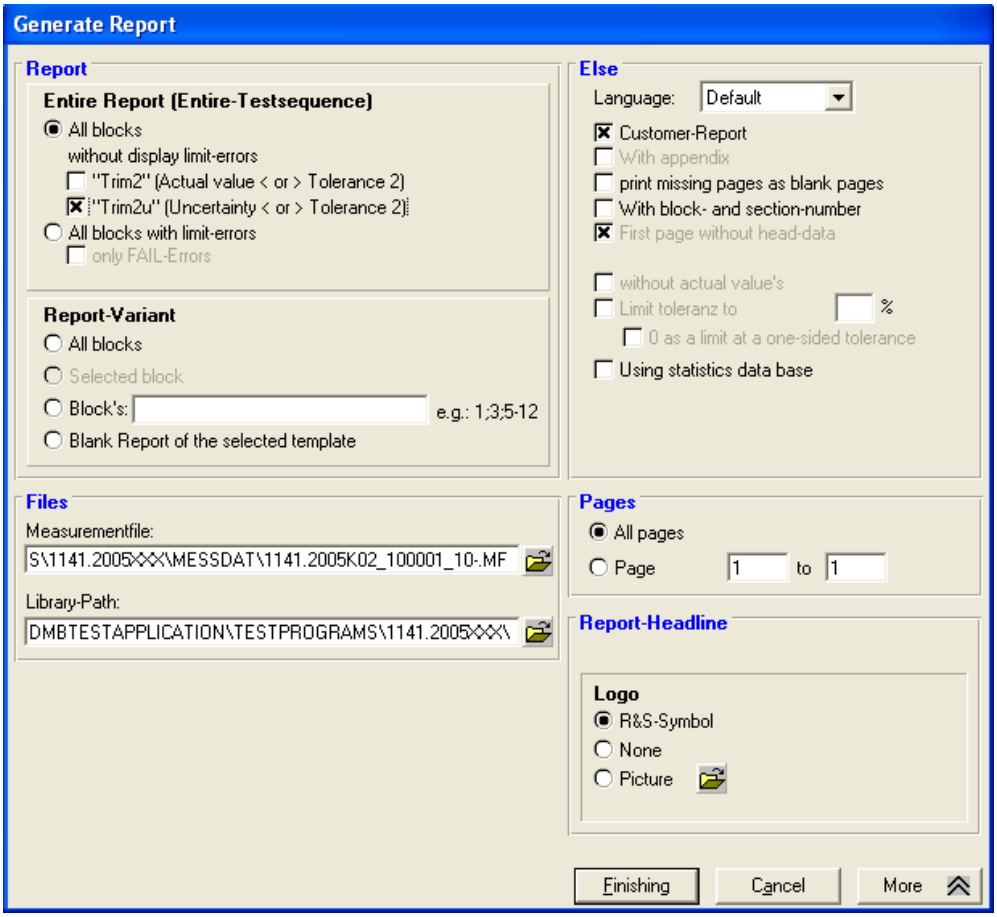


35. Define the contents of the Test Report.



36. Click the "Finishing" button.

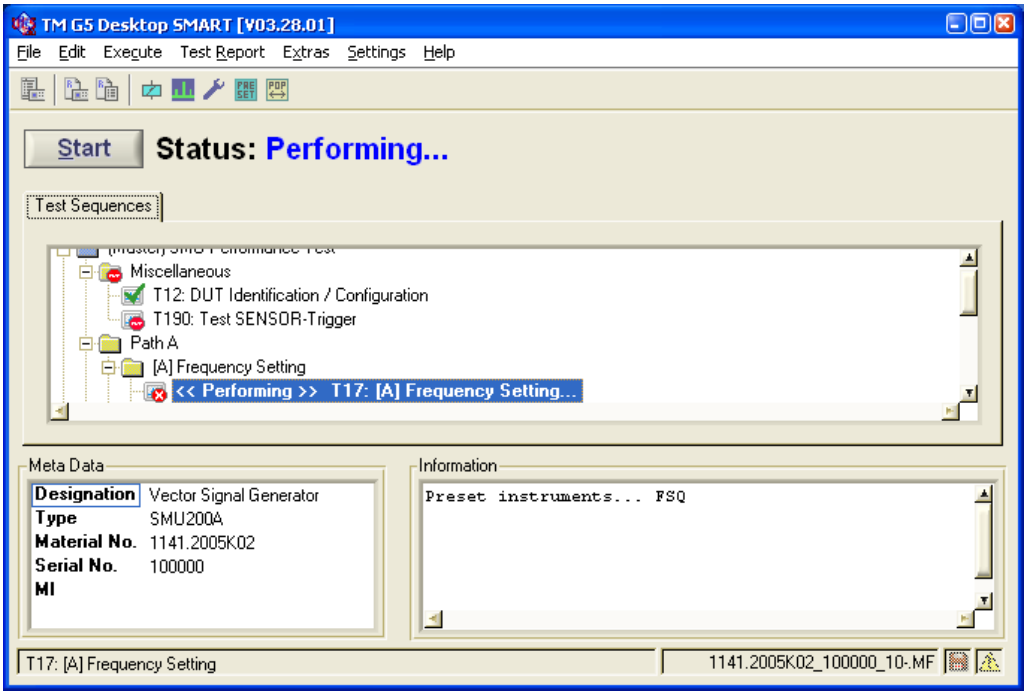
► Click the "More" button to extend or reduce the input mask.



The input mask consists of several groups which define the content and appearance of the Test Report.

Group	Description
Report	Defines the tests (blocks) which are part of the report.
Files	Defines the measurement file and the corresponding library path which build the base of the Test Report. Within the reduced input mask the current measurement file and library path are used.
Else	Defines miscellaneous settings such as the report language or appearance of missing pages.
Pages	Defines the number of pages.
Report-Headline	Defines the appearance of the report headline.

4.15 Using the Smart Desktop



Beside the three desktop orientation formats compact, horizontal and vertical (see section 3.4.1 "Desktop Orientation Settings of the Standard Desktop" [p. 37]) theTM G5 provides a further form of representation, the so-called Smart Desktop.

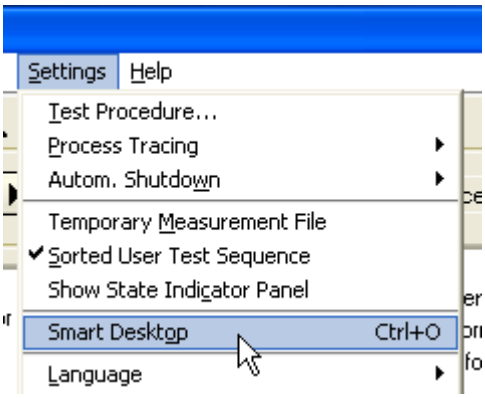
The Smart Desktop hides all desktop controls and menu items which are not necessary to execute the performance test of the current device. For example, only the Master Test Sequence and Master Test Sequence Appendix (see section 3.7.1 "Performing the Master Test Sequence" [p. 54] and section 3.7.2 "Performing the Master Test Sequence Appendix" [p. 54]) and the general DUT data are shown.

In contrast to the Standard Desktop, the Smart Desktop provides an additional button to start the Master Test Sequence. The status of the sequence is printed next to this button.

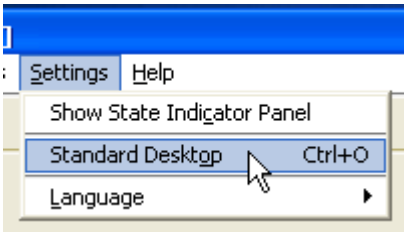
For this reasons, the Smart Desktop is more clearly arranged and easier to control as the Standard Desktop.

It is possible to switch between the two desktop formats anytime.

► Use the "Smart Desktop" command of the menu bar to switch from the Standard Desktop to the Smart Desktop.



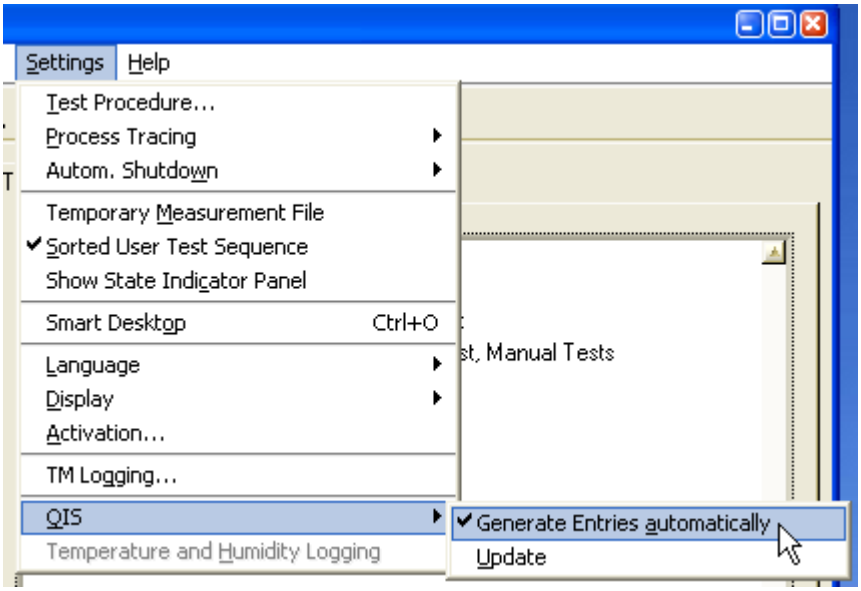
► Use the "Standard Desktop" command of the menu bar to switch from the Smart Desktop to the Standard Desktop.



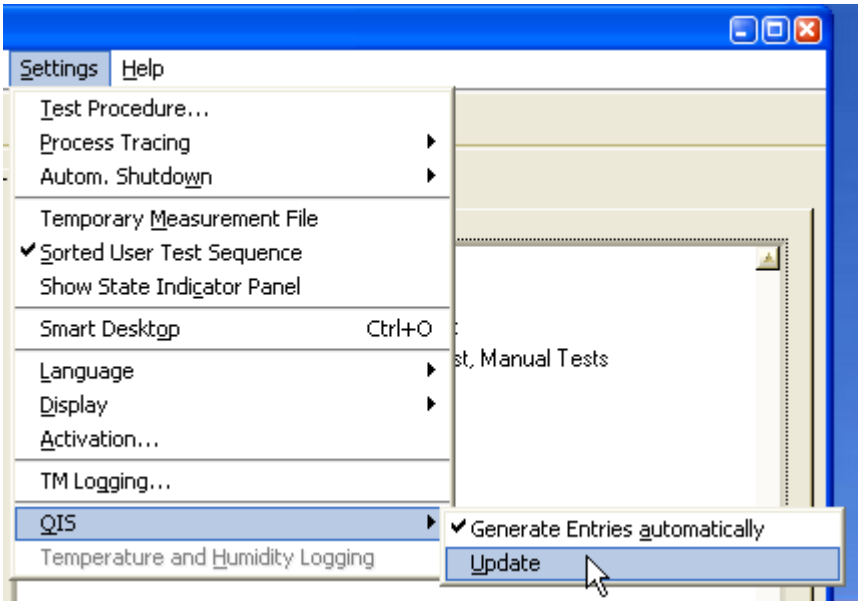
4.16 Generating CAQ entries automatically

The Quality Information System (QIS) is used to register production processes, register errors and evaluate production data. TheTM G5 provide an opportunity to write error codes into the CAQ automatically. An error code is written whenever a test of the performance test fails.

► Set the "Generate entries automatically" option of the menu bar to activate the automatic error code writing.



► Use the "Update" command of the menu bar to update the QIS database.



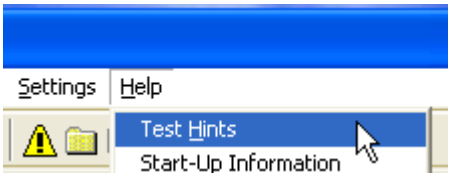
4.17 Getting Help

The "Help" menu provides the help for the Test Application. Help is grouped into several categories which are represented by related menu items.

Six different help categories are available which are described in more detail below.

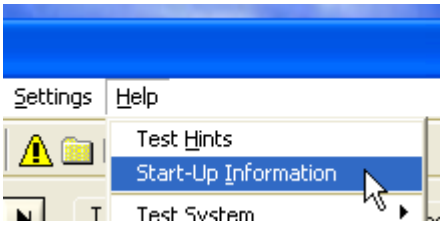
4.17.1 Test Hints

► Use the "Test Hints" command to get information referring to tests.



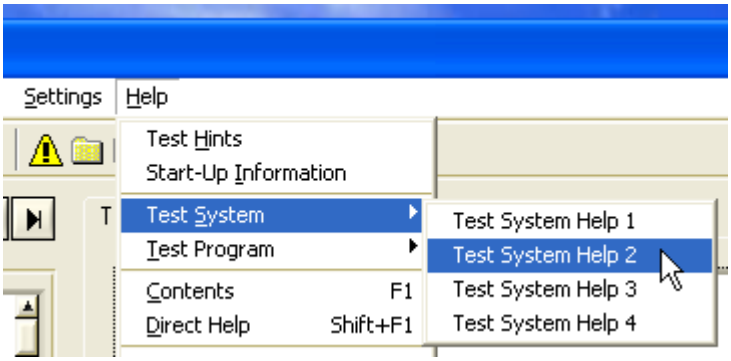
4.17.2 Start-up Information

► Use the "Start-Up Information" command to display the messages used during the Test Application start-up.



4.17.3 Test System

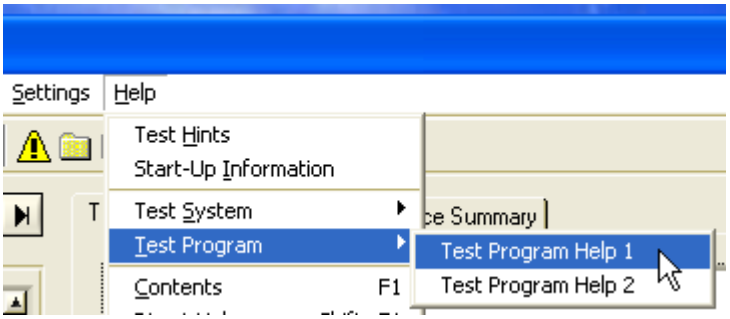
► Use the "Test System" items to get information referring to the test system.



The Test Hints, Start-Up Information and Test System information is supplied by the Test Program. The contents and availability of the hints and information can differ from Test Program to Test Program.

4.17.4 Test Program

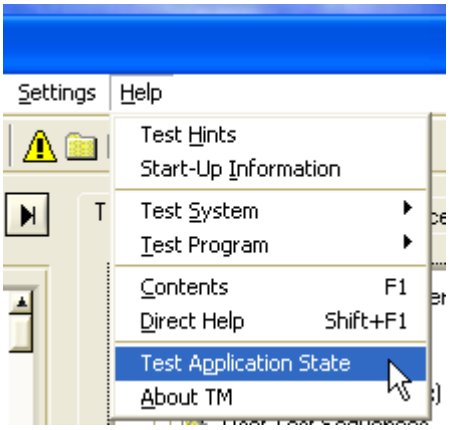
► Use the "Test Program" items to get information referring to the Test Program.



The Test Program information is supplied by the Test Program. The contents and availability of the information can differ from Test Program to Test Program.

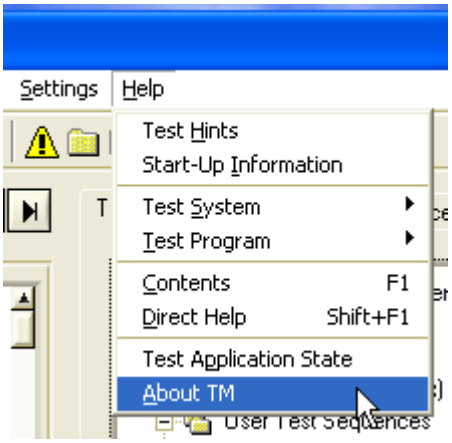
4.17.5 Test Application State

► Use the "Test Application State" command to monitor the current test application state. Information like current device data and application paths are listed.

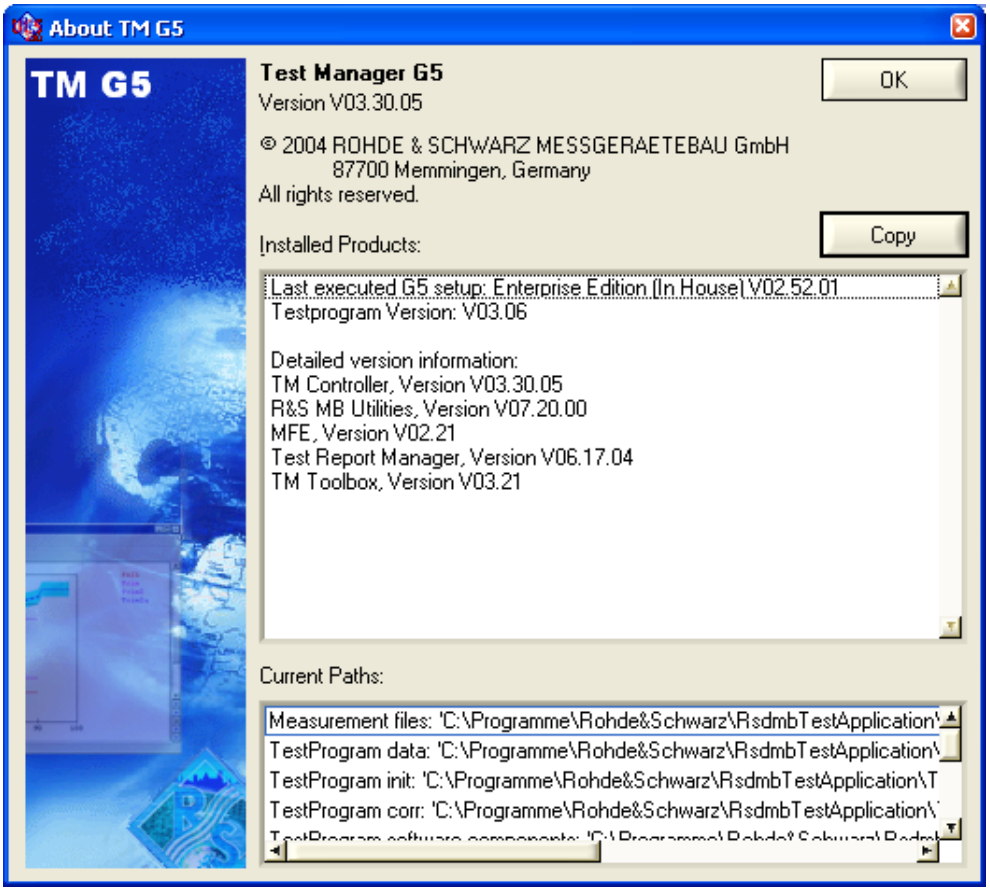


4.17.6 Product Information

► Use the "About TM" command to get the product information.



The Product Information lists the versions of all installed Test Application components. Additionally, the version of the used setup is shown.

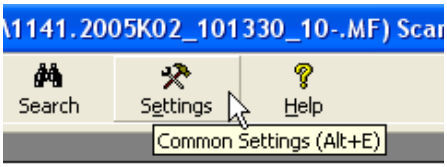


► Click the "Copy" button to copy the product information to the clipboard.

5 Extended Options

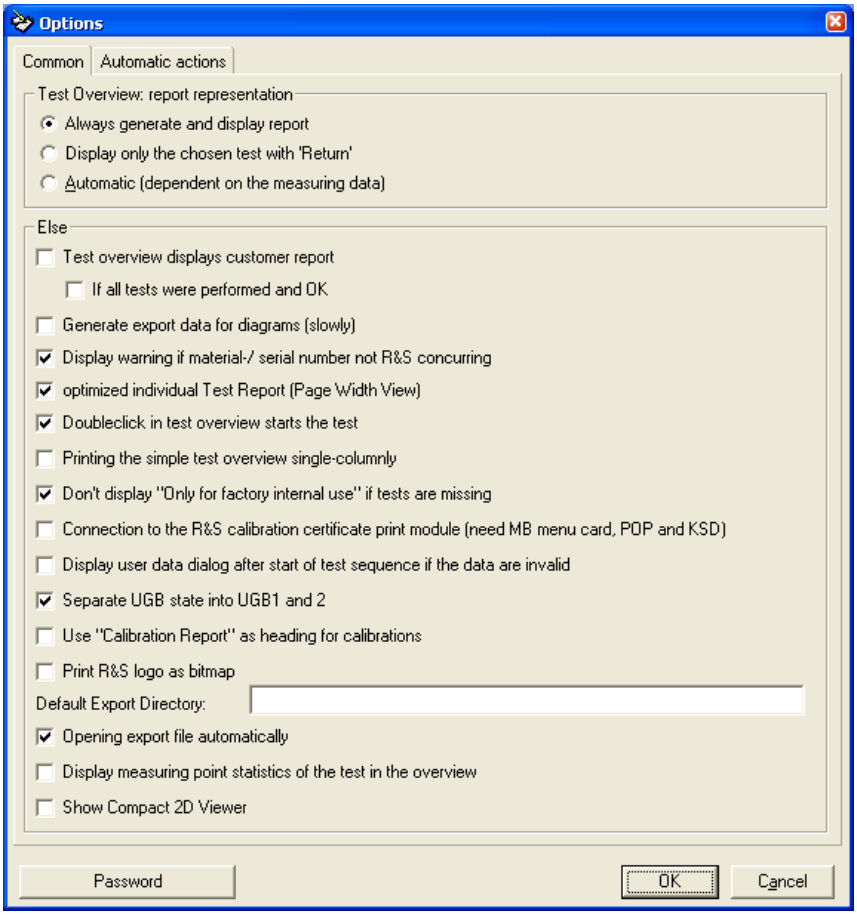
5.1 Test Report Options

37. Open any Test Report (see section 3.11 "Handling of Test Reports" [p. 71]).
38. Click the "Settings" button of the Test Report toolbar to open the settings menu.



5.1.1 Common Settings

The default common settings are as follows:

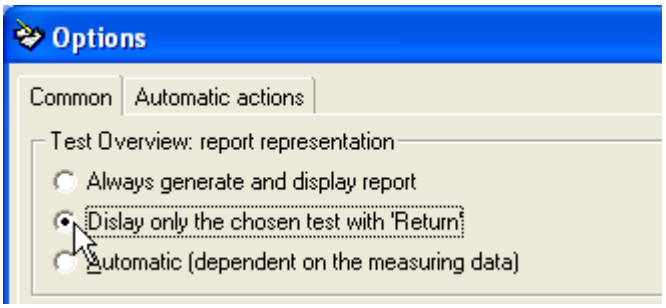


► Click the "Password" button to protect the changes.

5.1.1.1 Test Overview Settings for Report Representation

When the Test Report to be displayed contains a lot of tests, it can take quite a long time to open the Test Overview. This is, because all of the test report pages have to be created by filling the test report template with the data of the selected measurement file.

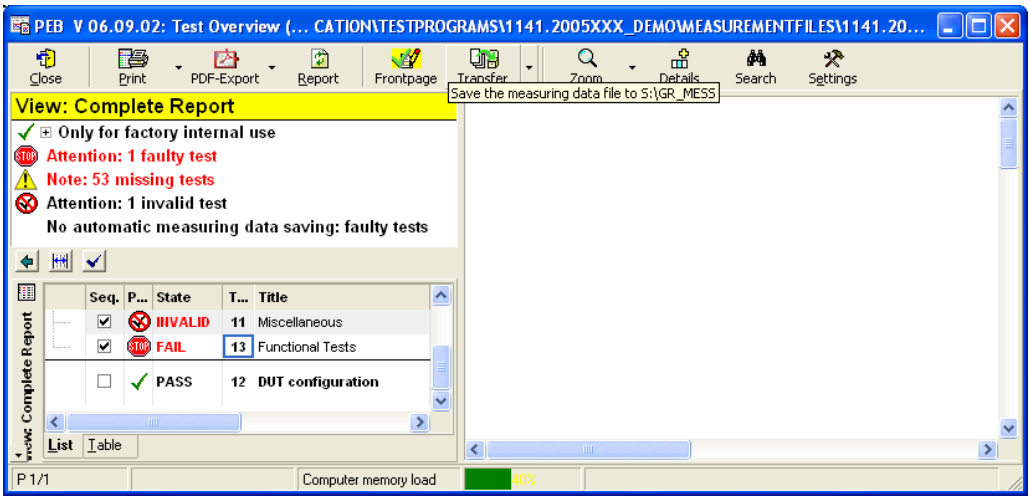
If the main reason to open the Test Overview is, to display the test status only, the creation of the test report pages can be canceled. To do so select the following option:



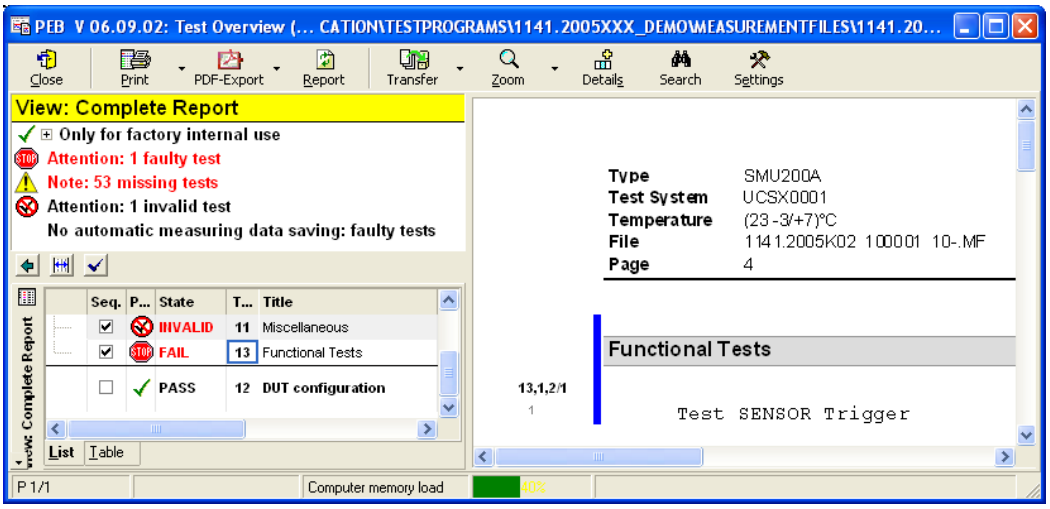
In this mode the Test Overview will be opened without the test report pages displayed which is much faster.

Even in this mode it is possible to display single test report pages:

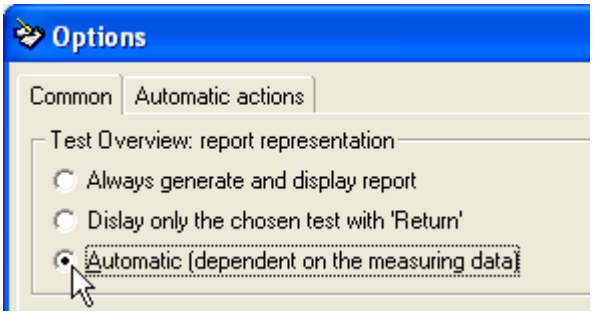
► Select a test to be displayed and press RETURN.



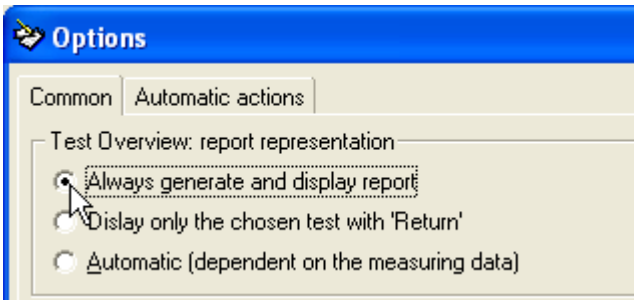
The selected test will be displayed:



The automatic mode as selected below changes automatically to the above described mode for big files only.



If it is preferred to have always a complete Test Report visible, select the following mode:



5.1.1.2 Further Settings

☑ Test overview displays customer report

All tests marked for the Customer Test Report will not be accessible in the "Test Overview" Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79]).

Tests which are not marked for the Customer Test Report are dimmed in the "Test Overview" Tab and not visible in the Test Report Area (see section 3.12.3 "Test Report Area" [p. 84]).

By default this setting is de-activated and all test will be shown in the "Test Overview" Tab.

☑ If all tests were performed and OK

Only the tests which are marked for the Customer Test Report, have been performed and are PASS will be accessible in the "Test Overview" Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79]).

☑ Generate export data for diagrams (slowly)

The export data for diagrams will be generated.

By default this setting is de-activated, since this will not slow down operation.

☑ Display warning if material-/ serial number not R&S concurring

The material and serial number displayed in the test report will be checked to match the R&S standard.

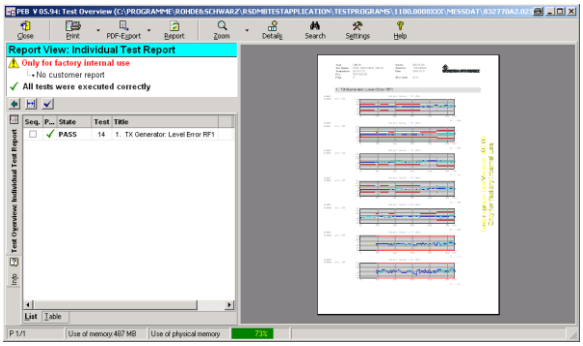
By default this setting is activated.

☑ optimized individual Test Report (Page Width View)

Controls the display mode for the Individual Test Report view:

Activated:

De-activated:



☑ Doubleclick in test overview starts the test

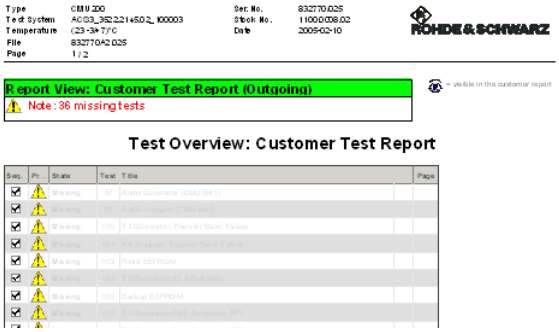
A double click in the "Test Overview" Tab (see section 3.12.2.1 "Test Overview Tab" [p. 79]) will start the test execution.

☑ Printing the simple test overview single-columnly

Controls the appearance of "Test Overview" Tab contents if the Overview Area (see section 3.12.2 "Overview Area" [p. 78]) is printed.

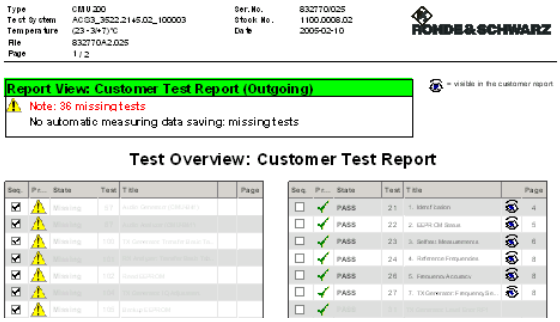
Active:

The single column mode provides more space for the test titles.



De-activated:

This mode saves overall space due to the second column, but there is also less space for the test title.



☑ Don't display "Only for factory internal use" if tests are missing

The water mark "Only for factory internal use" will not be printed even if tests are missing.

☑ Connection to the R&S calibration certificate print module (need MB menu card, POP and KSD)

The Calibration Certificate Print Module will opened automatically.

Only available in the internal factory production.

☑ Display user data dialog after start of test sequence if the data are invalid

The Test Report Front Page Data dialog will be opened automatically after the start of a test sequence.

☑ Separate UGB state into UGB1 and 2

The test state UGB will be split into UGB1 and UGB2 for more detailed inspection.

☑ Use "Calibration Report" as heading for calibrations

The default Test Report headline "Test Report" will be replaced by "Calibration Report".

☑ Print R&S logo as bitmap

The Rohde & Schwarz logo will be printed as bitmap.

Normally, the logo is printed as vector graphic, but this can cause problems on some PC using the PDF export functionality.

Default Export Directory:

The directory that is used as default when exporting a Test Report as PDF or RTF (see Creating a PDF Output (see section 3.12.6.3 "Creating a PDF Output" [p. 88]).

☑ Opening export file automatically

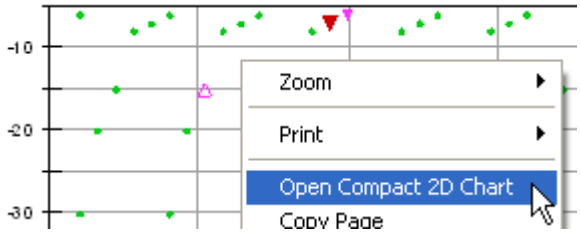
The export file will be opened immediately with the related default viewer after the Test Report export has been finished (see section 3.12.6.3 "Creating a PDF Output" [p. 88]).

☑ Display measuring point statistics of the test in the overview

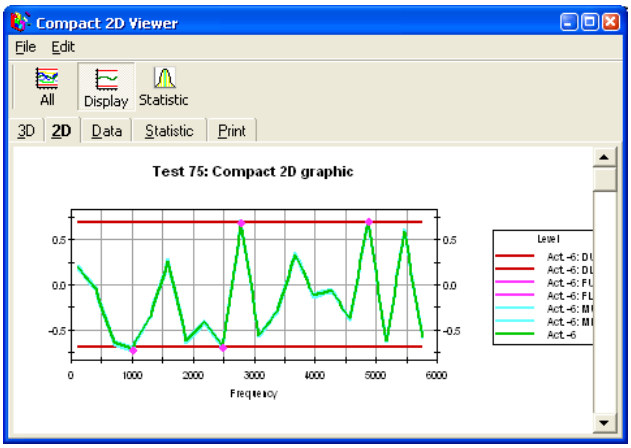
A standardised graphic will be displayed in the Test Overview which displays the distribution of test point results in-between the data sheet limits. The number of evaluated test points is also shown.

☑ Show Compact 2D Viewer

Item "Open Compact 2D Chart" will be added to the context menu of a compact 2D graphic.



Use this item to open an additional viewer to analyze the measurement values in detail.



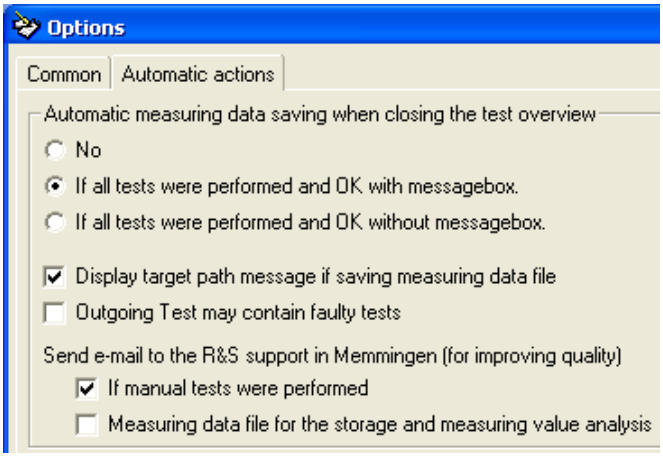
☑ Incoming test with watermark on all sides

A watermark will be attached to all pages of an incoming test report.

5.1.2 Automatic Actions

5.1.2.1 Automatic Transfer Settings

The setting of the Measuring Data Saving Group controls the way, the automatic measurement file transfer works. For further information see section 3.15.1 "Transfer Settings" [p. 108].



5.1.2.2 Automatic Front Page Edit

For further information see also section 3.7.7 "Automatic Test Report Front Page Data Query" [p. 59].

No	The automatic popup of the "Test Report Front Page Data" dialog is switched off. The dialog has to be opened manually.
Start of test overview	The "Test Report Front Page Data" dialog will pop up automatically before the Test Overview is opened. This setting is recommended for default.
End of test overview	The "Test Report Front Page Data" dialog will pop up automatically if the Test Overview is closed.
Only if all tests were performed and OK	The "Test Report Front Page Data" dialog will only pop up if all tests have been performed and are PASS.

5.1.2.3 Further Settings

Automatic check of the test documentation in the PDM	The test documentation defined by the Test Program will be checked with the entries in the PDM. Only available in the final production plants.

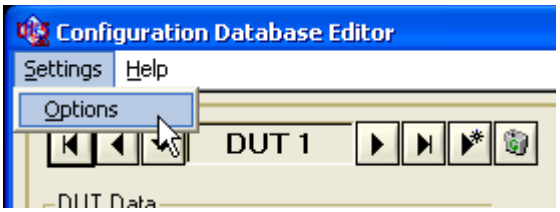
☑ Automatic response to the AIS when saving the measuring data file

Only available in the final production plants.

5.2 Configuration Database Editor Options

The configuration data editor is used to set up DUT and Test Configuration (see section 3.5 "Setting up DUT and Test Configuration" [p. 42]).

► Use the "Option" item to set up the preferences.



Settings

☑ Use the data of the current device as default on creation of new data

The data of the current device are used as initial values for a new device.

☑ Apply the changes automatically when leaving the mask

Modification of the device data are applied automatically when the input mask is left that is whenever you click the "Quit" button, create a new device and change the current device.

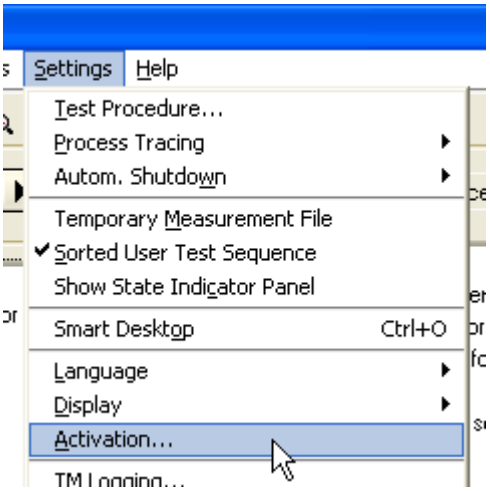
6 Obsolete Features of the TM G5

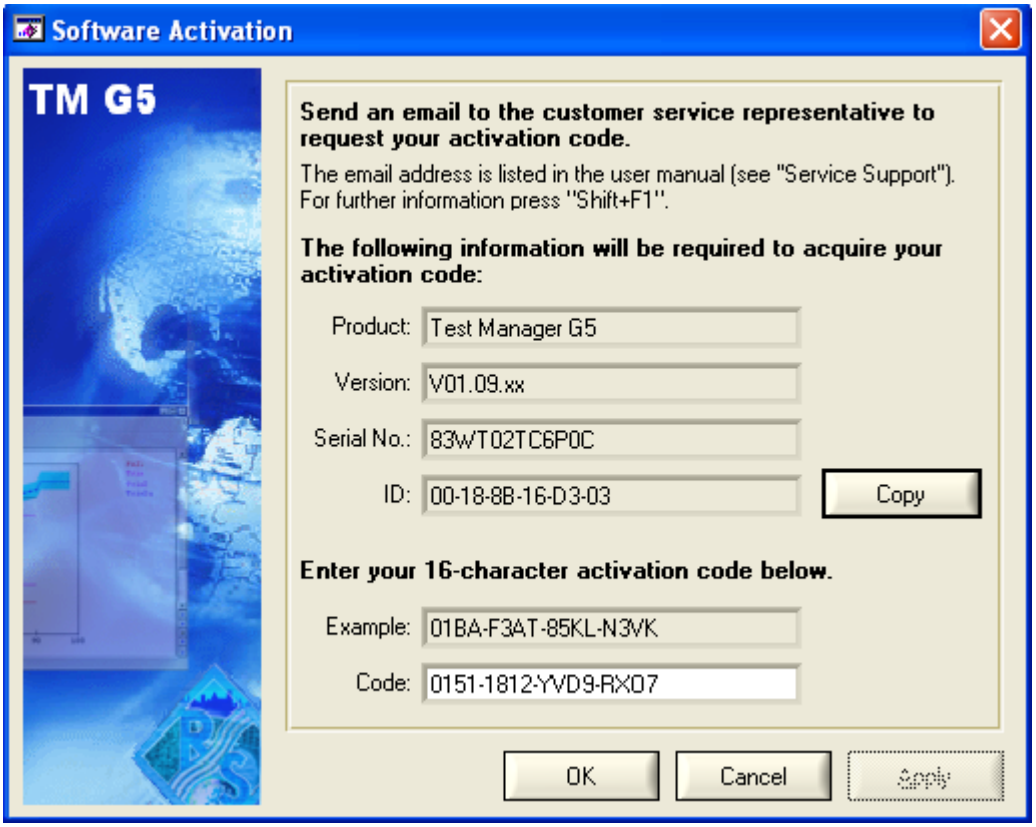
6.1 Activating theTM G5

The activation mechanism has been replaced by the Licensing Operation (see section 3.2 "Licensing theTM G5" [p. 13]). However, in certain circumstances if the licensing operation is not available or not working the activation mechanism is reactivated.

Activation is the process of obtaining an activation code to enableTM G5 to run on your computer. An activation code is an alphanumeric string that verifies the software, version, and features installed on your computer. Activation codes are unique and are valid on only one computer.

► Use the "Activation" command of the menu bar to open the "Software Activation" Dialog.





E-mail your activation request to the Service Support Centre (see 8 "Service Support" [p. 194]). To generate an activation code the Product Name, Product Version and System ID are used.

► Click the "Copy" button to copy the Product Name, Product Version and System ID to the clipboard.

The Service Support Centre will reply with an E-mail containing your activation code. Enter this activation code in the Software Activation Dialog and apply your input.

It is strongly recommended to unplug all external network cards before the activation is performed.

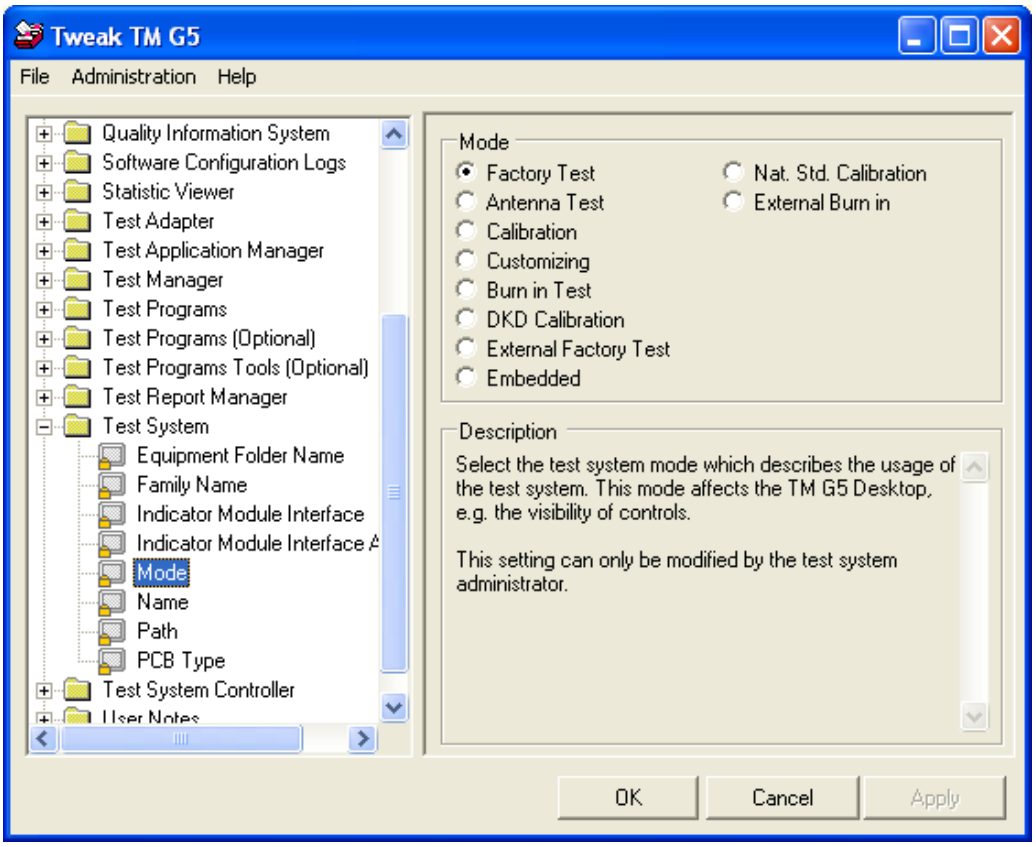
After unplugging the external network cards theTM G5 must be restarted!

The activation code is only required in case of using an Enterprise Edition of theTM G5.This is the developer version.

For the Standard Edition only the serial number is required, which is queried during the installation process. In this case, the code filed is empty and not editable.

7 Additional Tools

7.1 TweakTM G5

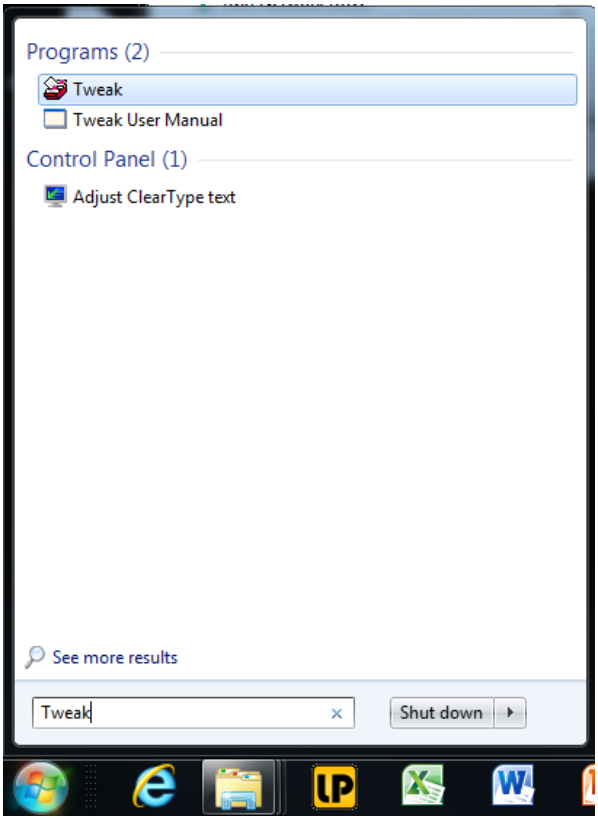


The "TweakTM G5" is used to configure the Test Application which are based on the usage of the Test Manager G5.

By means of this configuration tool, the test environment can be adjusted. For that purpose, test modes, paths, names, etc. can be modified.

For further information see the help of the "TweakTM G5".

► Use the windows start menu the box “Search on programs and files” , enter Tweak and start the the configuration tool.



Close the Test Application to make modifications.

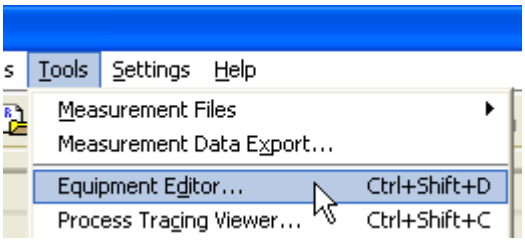
The properties are classified in several security levels and password protected. To receive the passwords turn to the Service Support (see section 8 "Service Support" [p. 194]).

7.2 Equipment Editor

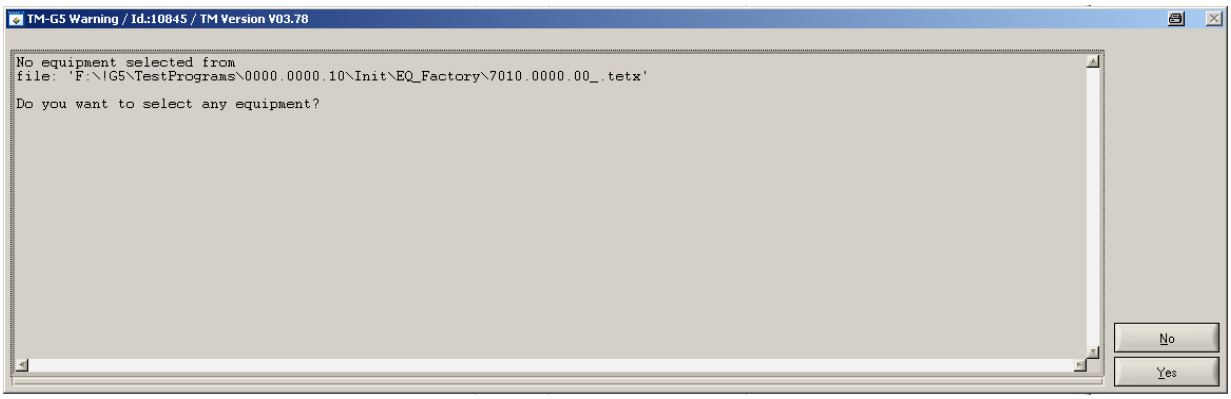
(Search Tag: EquipmentEditorHelp)

When instruments and modules are being calibrated, a record containing all the test equipment that will be used must be created. On the one hand this is necessary to generate a calibration certificate. On the other hand this ensures the traceability of the test equipment used. Therefore, the *Equipment Editor* serves as a production tool for managing the test equipment..

► Use the "Equipment Editor" command of the menu bar to open the tool.



If the test program works with “Equipment Files” and there is no equipment configured by the user, the following question appears during the start-phase of the test program: “Do you want to select any equipment? If you press the “Yes” button, the Equipment Editor will be started automatically otherwise no equipment is configured.



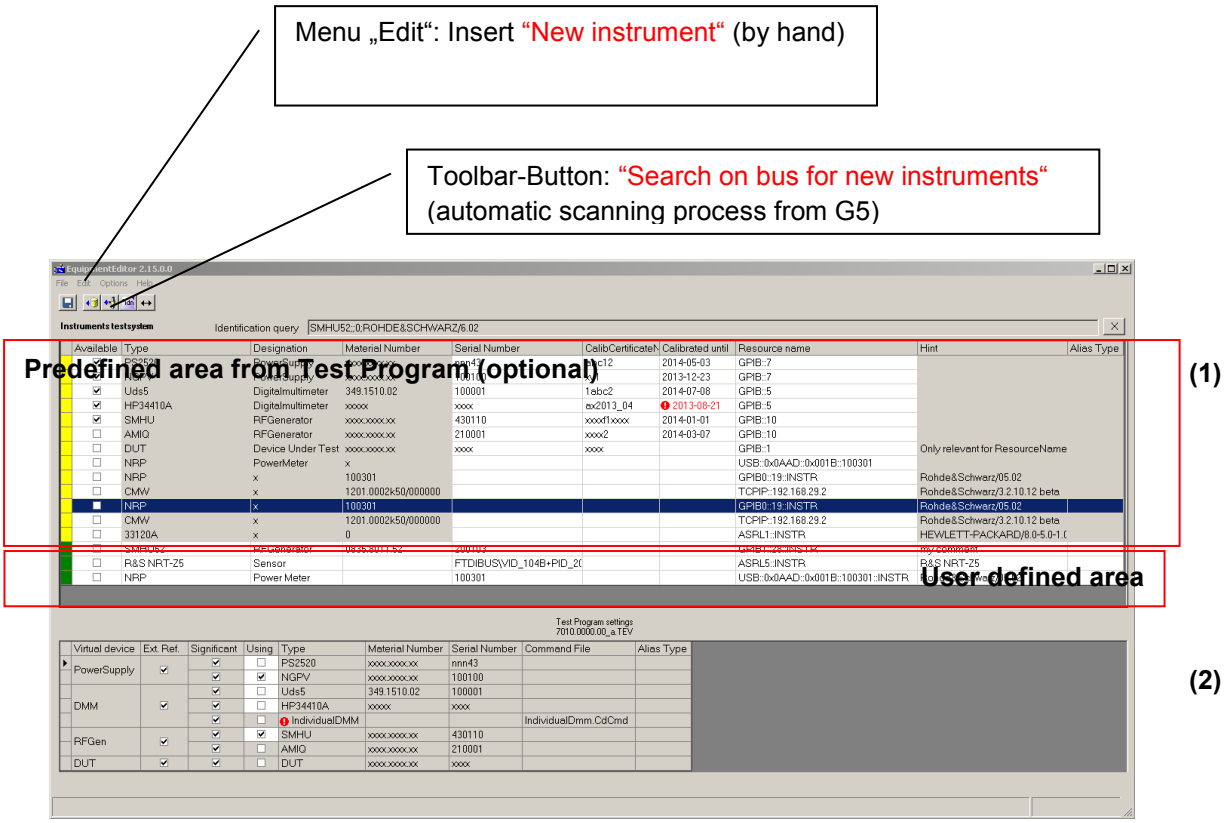
7.2.1 User interface of the Equipment Editor

There are two lists within the Equipment Editor.

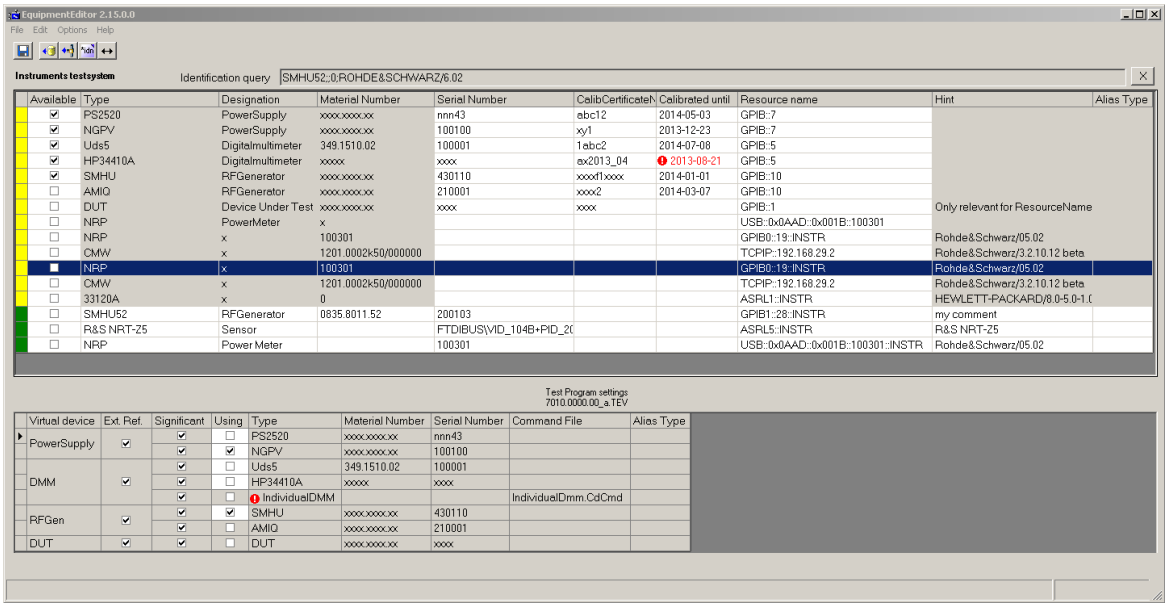
1. **First list (1)** with “instruments test system”.
   It is possible for you to insert new instruments.
   E.g.: There are more than one NGPV available for you (different Serial Number) and you have to check/uncheck “Available” the available/unavailable NGPV.
   If the first list is empty, you have to ”search on bus for new instruments” on your Test System (see below) or you insert ”New instruments” by hand.

   What else is possible within the first list:
   - insert/change resource name (address) of available instruments
   - insert/change serial number of instruments
   - optional for “significant” Virtual Devices and its intruments (using): insert/change calibration data

2. **Second list (2)** with “Virtual Devices” which are needed for the current Test Program.
   E.g.: Test Program needs a “PowerSupply” you have to check “Using” for the available instrument. It depends on the Test Program how many different instruments are possible for the “PowerSupply” or any other “Virtual Device”.



General: each “white” cell is editable by the user.



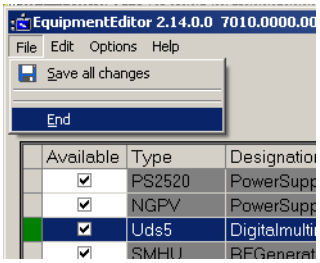
7.2.2 First List “Instruments Test System”

Column	Description
Available	Check this box if an instrument is physical available
Designation	Designation of an instrument
Type	Type of an instrument (relevant for controlling the instrument by the Test Program)
Material Number	Material Number (Part Number) of an instrument
Serial Number	Serial Number of an instrument
Master Data Number	Unique ID for the Instrument within a Asset Management System (e. g: PMV (R&S Tool)) (only for Factory Test Systems available)
CalibCertificateNum	An alphanumeric string of a calibration certificate number
Calibrated until	Calibrated until (format depending on your local PC). A red exclamation mark shows that the date is reached.
Resource Name	Interface ID and Address for remote control of the Instrument
Hint	Hint
AliasType	Type of an instrument
Identification query	Identification query (read from the instrument)

7.2.3 Second List “Test Program settings”

Column	Description
Virtual device	A Virtual device represents a class of instruments which is needed for the Test Program. If an “Available” instrument is selected (see “Using”) the cell will be green colored.
Simulate	(optional) Simulate a Instrument (If a test works with a simulated instrument, the first measurement value will be set automatically to “invalid”
Ext. Ref.	External Reference is necessary or not (this Checkbox could be enabled by the Test Program for the user)
Significant	If this Checkbox is checked the selected Instrument (see column “Using”) is displayed at the table “Working Standards used“ on the test report if “KSD” (KalibrierScheinDruckmodul) is not available
Using	Select an “Available” instrument for this Virtual device
Type	Type of an instrument (relevant for controlling the instrument by the Test Program)
Alias Type	Type of an instrument
Resource Name	Interface ID and Address for remote control of the Instrument
Material Number	Material Number of a possible instruments
SerialNumber	Serial Number of a possible instruments
Master Data Number	Unique ID for the Instrument within a Asset Management System (optional) (e.g: PMV (R&S Tool))
Calibrated until	Calibrated until (format depending on your local PC). A red exclamation mark shows that the date is reached.
Command File	In some cases the Test Program needs a special driver file for a Virtual device this file name is displayed in this cell. (this Checkbox could be enabled by the Test Program for the user to select his own driver file)

7.2.4 Menu “File”



- Finish the Equipment Editor and get back to G5 Desktop with <File> <End>
- Save all changes with <File> <Save all changes>.
  (Not for all changes is it necessary to save changes explicit. If it is necessary, you always will be asked automatically for “Save all changes” if you close the Equipment Editor.)

7.2.5 Menu “Edit”

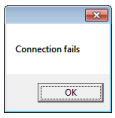
- Insert further (your own) Instruments with <Edit> <New instrument>.
  For such an Instrument all cells are editable.
- Delete an Instrument of the list with <Edit> <Delete instrument>.
  You can delete only one of your own Instruments.
- Read data from PMV database (R&S MB specific) (see Toolbar)
- Search on bus for new instruments (see Toolbar)
- Identification query (*IDN?) (see Toolbar)

7.2.6 Toolbar

Search on bus for new instruments
(see 7.2.6.2 Toolbar: Scan some bus)

Read data from PMV database (see 7.2.6.1 Toolbar: Updata from PMV)

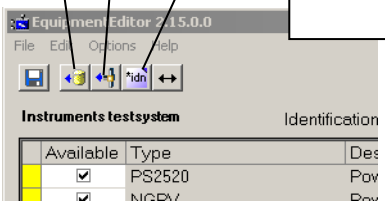
(R&S MB specific for calibration data). If database is not available, you get an error message like this:



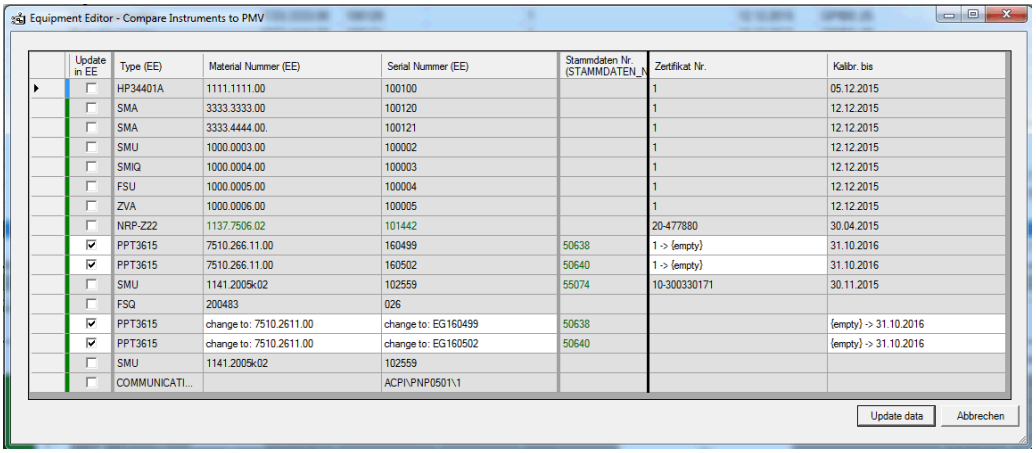
*idn: intrument query for the selected intrument with its resource name.

The result will be displayed above the table of the instruments.

Toolbar :



7.2.6.1 Toolbar: Updata from PMV



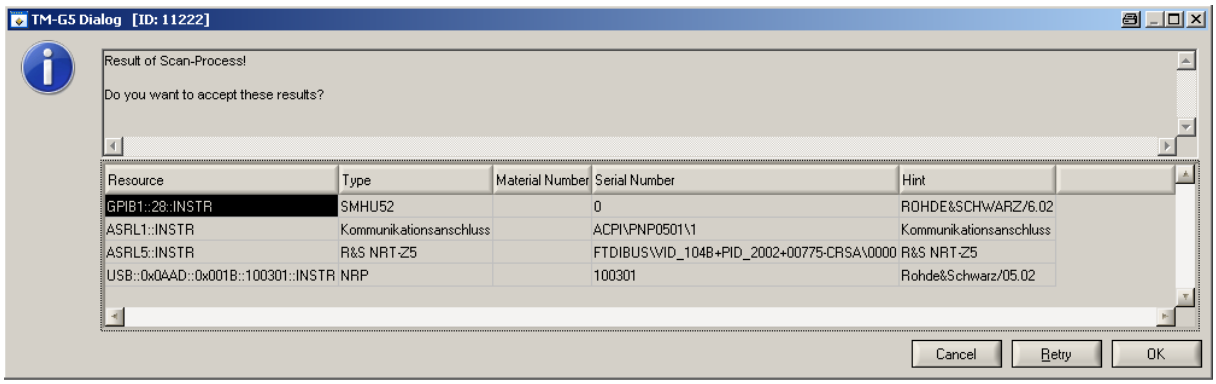
Update in EE	Type (EE)	Material Nummer (EE)	Serial Nummer (EE)	Stammdaten Nr. (STAMMDATEN_N	Zertifikat Nr.	Kalibr. bis
☐	HP34401A	1111.1111.00	100100		1	05.12.2015
☐	SMA	3333.3333.00	100120		1	12.12.2015
☐	SMA	3333.4444.00.	100121		1	12.12.2015
☐	SMU	1000.0003.00	100002		1	12.12.2015
☐	SMIQ	1000.0004.00	100003		1	12.12.2015
☐	FSU	1000.0005.00	100004		1	12.12.2015
☐	ZVA	1000.0006.00	100005		1	12.12.2015
☐	NRP-Z22	1137.7506.02	101442		20-477880	30.04.2015
☑	PPT3615	7510.266.11.00	160499	50638	1 -> {empty}	31.10.2016
☑	PPT3615	7510.266.11.00	160502	50640	1 -> {empty}	31.10.2016
☐	SMU	1141.2005k02	102559	55074	10-300330171	30.11.2015
☐	FSQ	200483	026			
☑	PPT3615	change to: 7510.2611.00	change to: EG160499	50638		{empty} -> 31.10.2016
☑	PPT3615	change to: 7510.2611.00	change to: EG160502	50640		{empty} -> 31.10.2016
☐	SMU	1141.2005k02	102559			
☐	COMMUNICATI...		ACPI\PNP0501\1			

Column	Description
Update in EE	Automatically checked if instrument data are found by MasterDataNum (first priority) or Material Number + Serial Number (second priority) and Calibration data from Equipment Editor are different from PMV.
Type (EE)	Instrument Type from Equipment Editor (will not be overwritten from PMV)
Material Number (EE)	Instrument Material Number from Equipment Editor (will be overwritten with data from PMV if “Update in EE” is checked and cell within the Equipment Editor is empty)
Serial Number (EE)	Instrument Serial Number from Equipment Editor (will be overwritten with data from PMV if “Update in EE” is checked and cell within the Equipment Editor is empty)
Stammdaten Nr.	Unique ID for each instrument “MasterDataNum”
Zertifikat Nr.	“Calibration Certificate Number” from Equipment Editor (will be overwritten with data from PMV if “Update in EE” is checked)
Kalibr. bis	“Calibrated until” from Equipment Editor (will be overwritten with data from PMV if “Update in EE” is checked)
Calibrated until (EE)	“Calibrated until” from Equipment Editor (will be overwritten with data from PMV if “Update in EE” is checked

7.2.6.2 Toolbar: Scan some bus systems

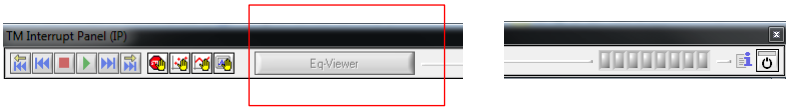
- GPIB
- COM
- LAN (according to R&S MB subnet specification (interruptible)
- USB Ports on PC for R&S Devices and R&S PowerSensors
  USB Ports on R&S-Devices for R&S PowerSensors

Search on bus for (new) instruments: If you have done some changes with your instruments, you can do a scan on some bus systems. After this scan you can insert these results as “new instruments” with the “OK”-button (always appended at the existing instrument table). You can ignore these results with the “Cancel”-button or you can repeat this scan process with pressing the “Retry”-button.

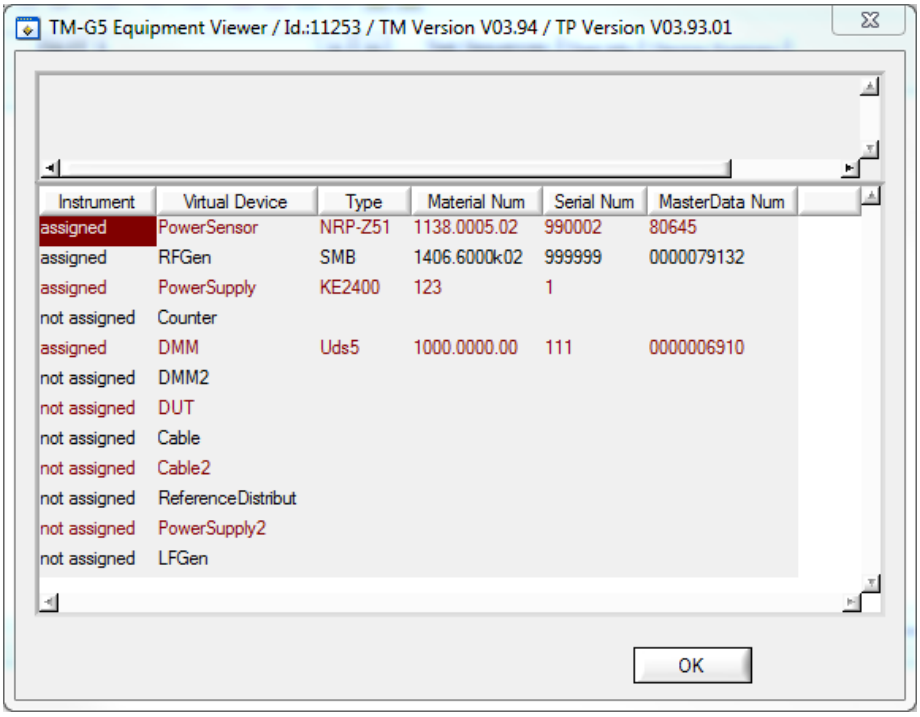


7.3 Equipment Viewer

Equipment Viewer available on Interrupt Panel (IP):



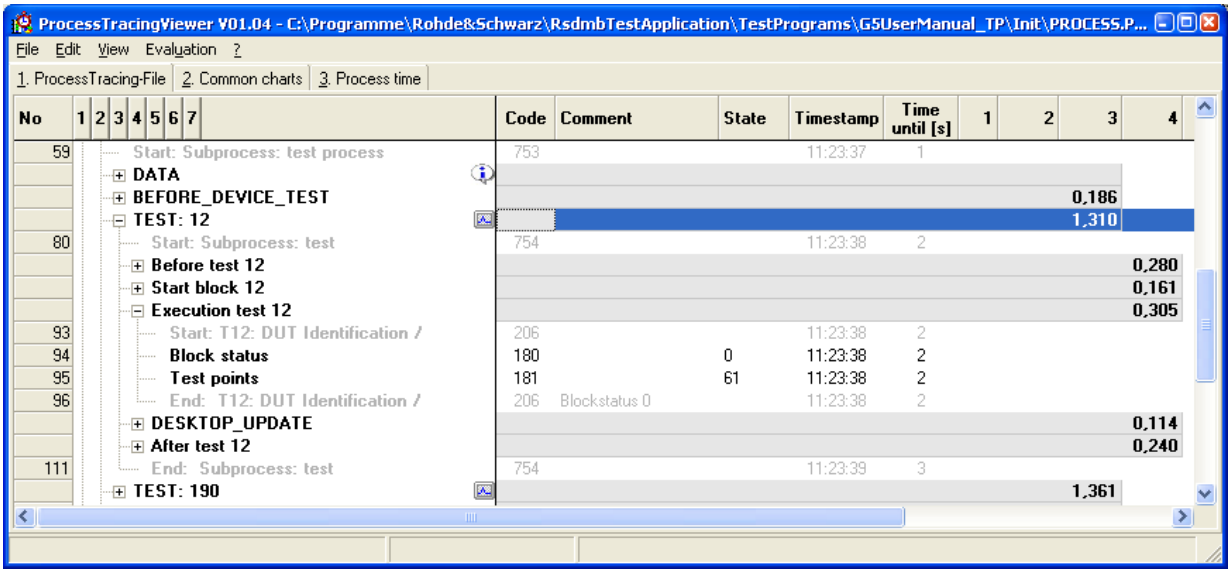
During a test is running the Equipment Editor is not available, if you want to have a short overview about your instruments in this case, you can start the Equipment Viewer.



Instrument	Virtual Device	Type	Material Num	Serial Num	MasterData Num
assigned	PowerSensor	NRP-Z51	1138.0005.02	990002	80645
assigned	RFGen	SMB	1406.6000k02	999999	0000079132
assigned	PowerSupply	KE2400	123	1	
not assigned	Counter				
assigned	DMM	Uds5	1000.0000.00	111	0000006910
not assigned	DMM2				
not assigned	DUT				
not assigned	Cable				
not assigned	Cable2				
not assigned	ReferenceDistribut				
not assigned	PowerSupply2				
not assigned	LFGen				

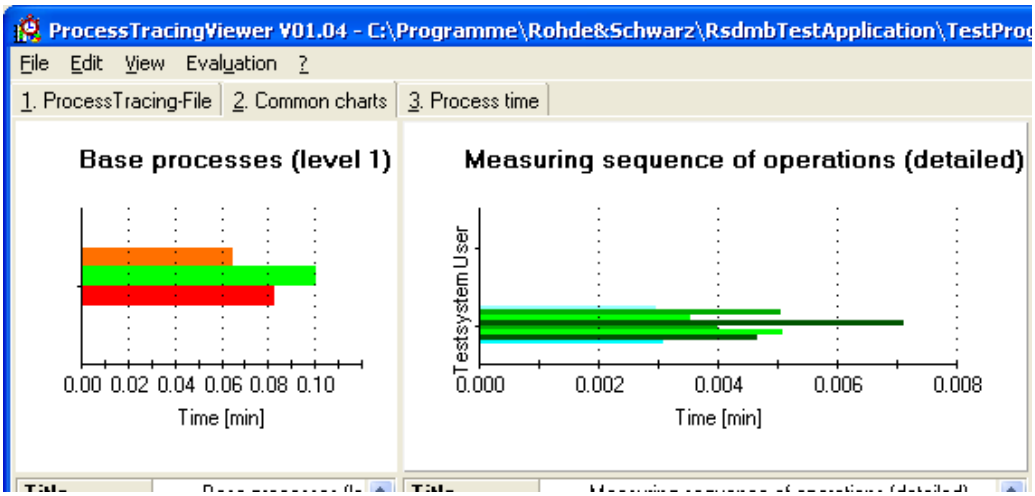
Column	Description
Instrument	
Virtual Device	Instrument used as ...
Type	Type of an instrument
Material Number	Material Number of an instrument
Serial Number	Serial Number of an instrument
Master Data Number	(optional) Master Data Number from PMV (R&S Tools) of an instrument

7.4 Process Tracing Viewer



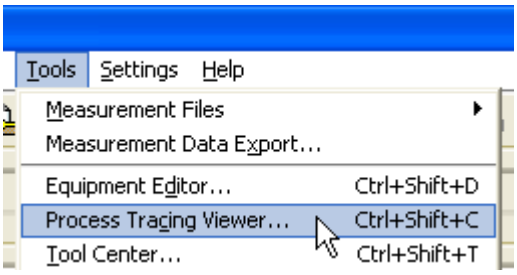
The "Process Tracing Viewer" is used to visualize the process tracing information. This information is generated when the Process Tracing (see section 4.8 "Tracing the Test Process" [p. 144]) is activated.

The viewer lists the elapsed time for several logical units. This units are displayed within the tree view on the left hand side of the viewer window. The units can be expanded or collapsed by means of a left mouse click. On the right hand side of the window the process tracing information of each unit is displayed more in detail.

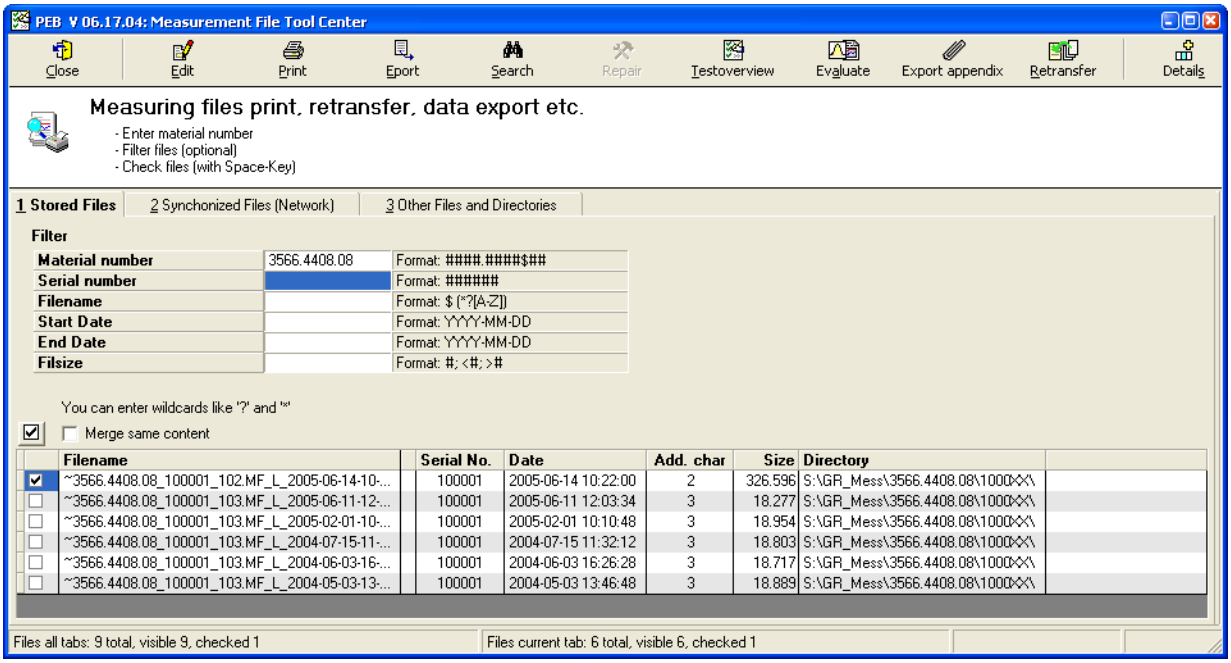


Additionally, the "Process Tracing Viewer" provides several charts to analyse and export the time flow for various aspects. The look and feel of the charts, e.g. orientation, colours and labelling, can be adjusted to your own imagination.

► Use the "Process Tracing Viewer" command of the menu bar to visualize the current process tracing information.



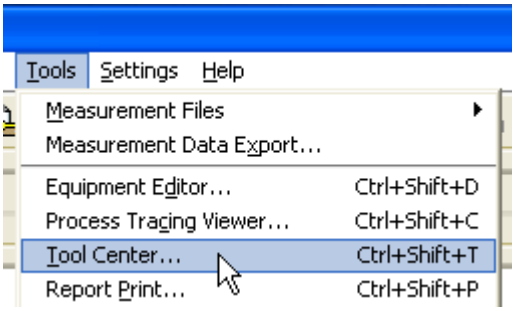
7.5 Tool Center



The "Tool Center" is used to operate on multiple measurement files at once. The tool enables you to display and print a report, retransfer (see section 3.15 "Transfer of Measurement Files" [p. 107]), export, do statistic evaluations, etc. of the selected measurement files.

For further information see the Tool Center's help.

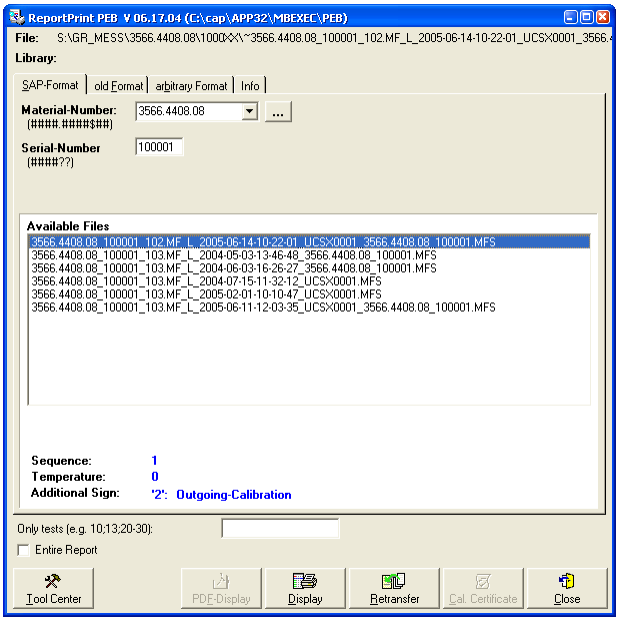
► Use the "Tool Center" command of the menu bar to start the tool.



On default the "Tool Center" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "Tool Center" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "Tool Center" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

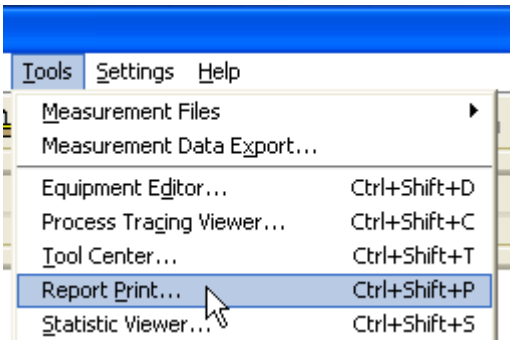
7.6 Report Print



The "Print Report" is used to display and print a report of a measurement file. The tool enables you to selected any existing measurement file even already transferred files (see section 3.15 "Transfer of Measurement Files" [p. 107]). Additionally, measurement files can be retransferred.

For further information see the Print Report's help.

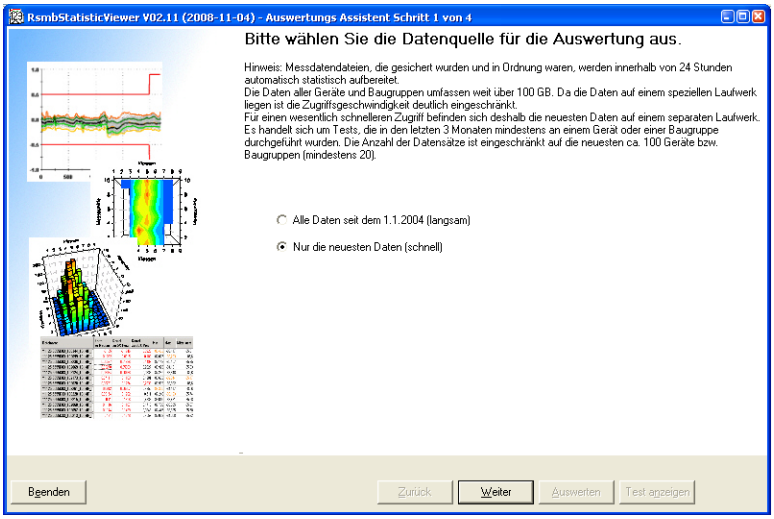
► Use the "Print Report" command of the menu bar to start the tool.



On default the "Print Report" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "Report Print" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "Report Print" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

7.7 Statistic Viewer

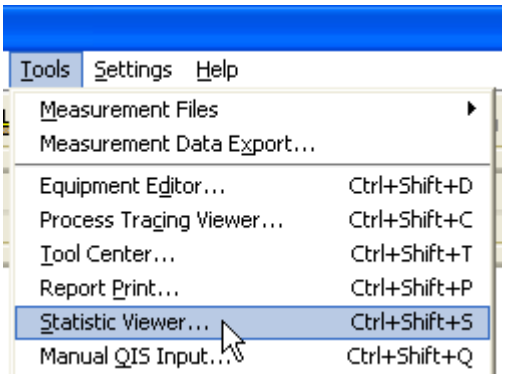


At the moment, the "Statistic Viewer" is only available in German.

All measurement files, which are transferred (see section 3.15 "Transfer of Measurement Files" [p. 107]) and contain only passed tests, are statistically prepared by background process overnight. The "Statistic Viewer" is used to visualize these calculations. Thus, the measurement results can be evaluated from several point of views.

For further information see the Statistic Viewer's help.

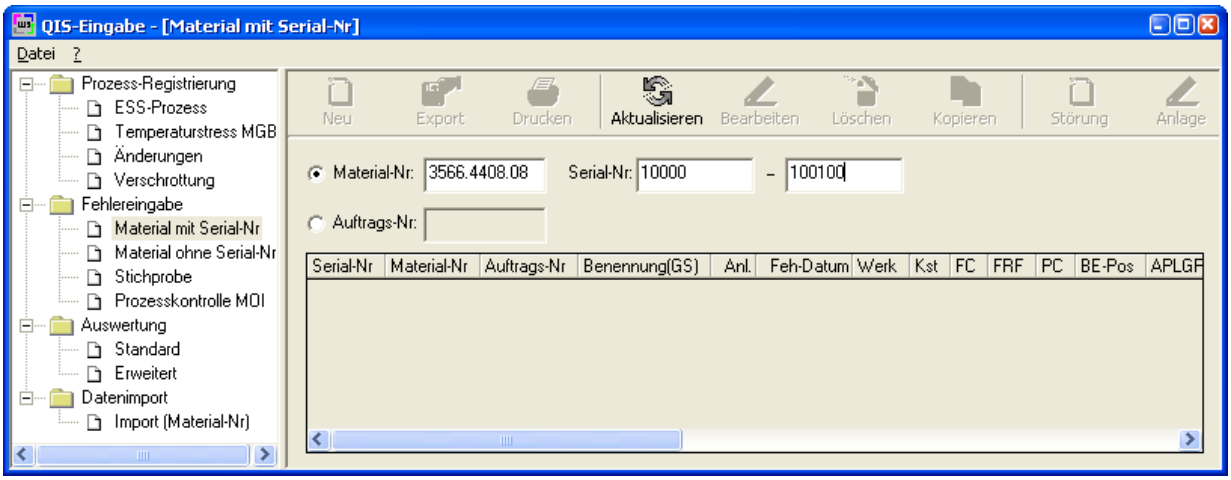
► Use the "Statistic Viewer" command of the menu bar to start the tool.



On default the "Statistic Viewer" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "Statistic Viewer" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "Statistic Viewer" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

7.8 Manual QIS Input

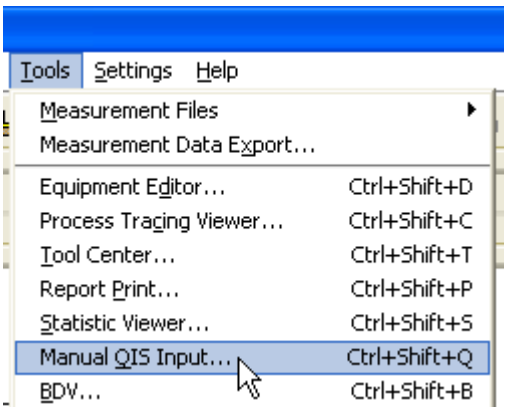


At the moment, the "Manual QIS Input" is only available in German.

The Quality Information System (QIS) is used to register production processes, register errors and evaluate production data. The "Manual QIS Input" can be used to set these data manually.

For further information see the Manual QIS Input's help.

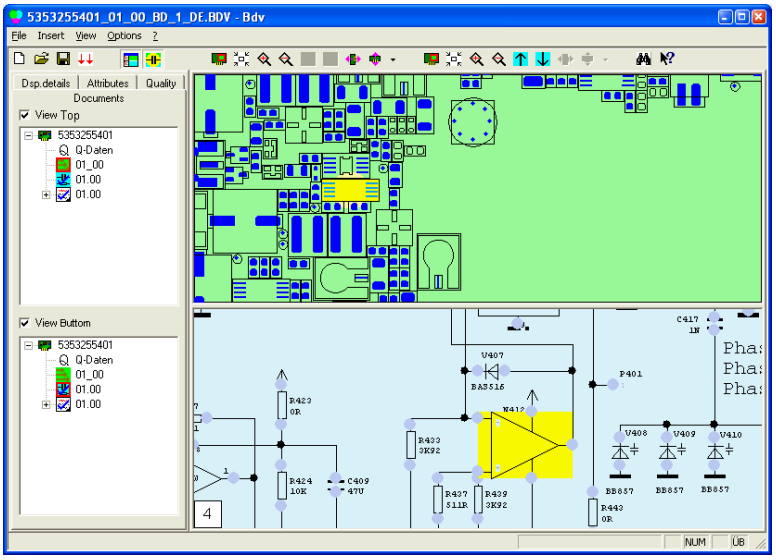
► Use the "Manual QIS Input" command of the menu bar to start the tool.



On default the "Manual QIS Input" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "Manual QIS Input" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "Manual QIS Input" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

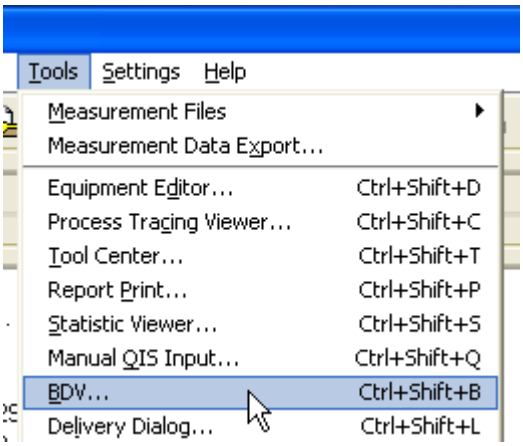
7.9 BDV (Board Data Viewer)



The BDV visualizes the document layout, circuit diagram and bill of materials of modules in an "intelligent" way. The Tool can be used to search a part or pin, to display part attributes like material number and to show datasheets of a part.

For further information see the BDV's help.

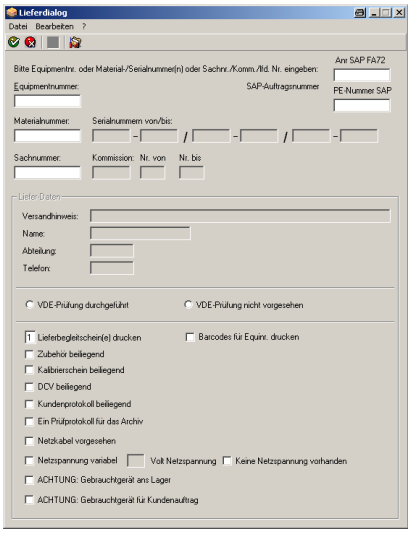
► Use the "BDV" command of the menu bar to start the tool.



On default the "BDV" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "BDV" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "BDV" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

7.10 Delivery Dialog

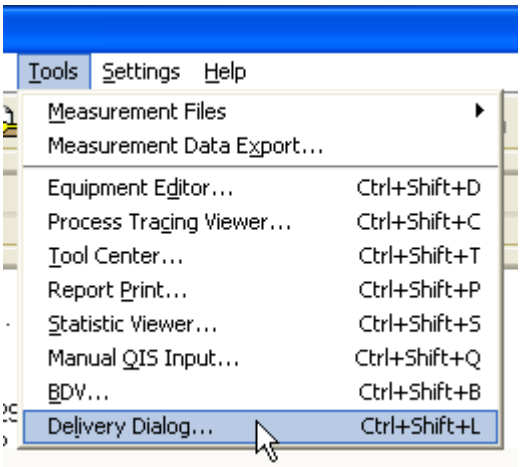


At the moment, the "Delivery Dialog" is only available in German.

The production process is followed by the delivery process. By means of the "Delivery Dialog" the delivery process is started or performed, respectively.

For further information see the Delivery Dialog's help.

► Use the "Delivery Dialog" command of the menu bar to start the tool.



On default the "Delivery Dialog" command is not visible in the menu bar. Use the configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) (Folder: Menu Card Tools) to configure the "Tools" menu.

The "Delivery Dialog" is not part of the Test Management Software G5 distribution. It is a stand-alone tool which can be accessed via the Rohde & Schwarz Messgeraetebau GmbH specific software tool "Menuekarte". Hence, in order to use the "Delivery Dialog" the "Menuekarte" must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

7.11 Test Application State Indicator

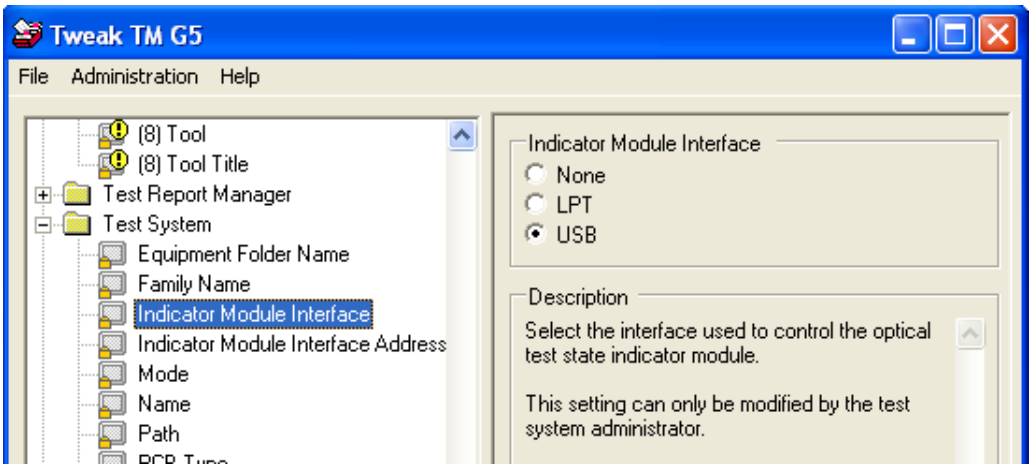
The Test Application State Indicator is an USB-bus controlled device which is used to indicate the current state of the test application. The several application states are coded as described in the table below.

Green	Orange	Red	Description

off	off	off	The test application is idle or down.
on	off	off	A test is running.
off	off	on	User interaction is required.
on	off	on	A temporary message is displayed.
off	on	off	A least one test point of the previous executed test or test sequence is out of tolerance.
on	on	off	A least one test point of currently running test or test sequence is out of tolerance
off	on	on	The currently running test or test sequence is interrupted because of an error. The breakpoint mode "Break on Error" is activated (see section 4.2 "Working with Breakpoints" [p. 128]).
on	on	on	Reserved

The Test Application State Indicator must be ordered separately.

The Test Application configuration tool TweakTM G5 (see section 7.1 "TweakTM G5" [p. 171]) has to be used to activate the state indication.


Tweak TM G5
File
Administration
Help
(8) Tool
(8) Tool Title
Test Report Manager
Test System
Equipment Folder Name
Family Name
Indicator Module Interface
Indicator Module Interface Address
Mode
Name
Path
Indicator Module Interface
None
LPT
USB
Description
Select the interface used to control the optical test state indicator module.
This setting can only be modified by the test system administrator.

8 Service Support

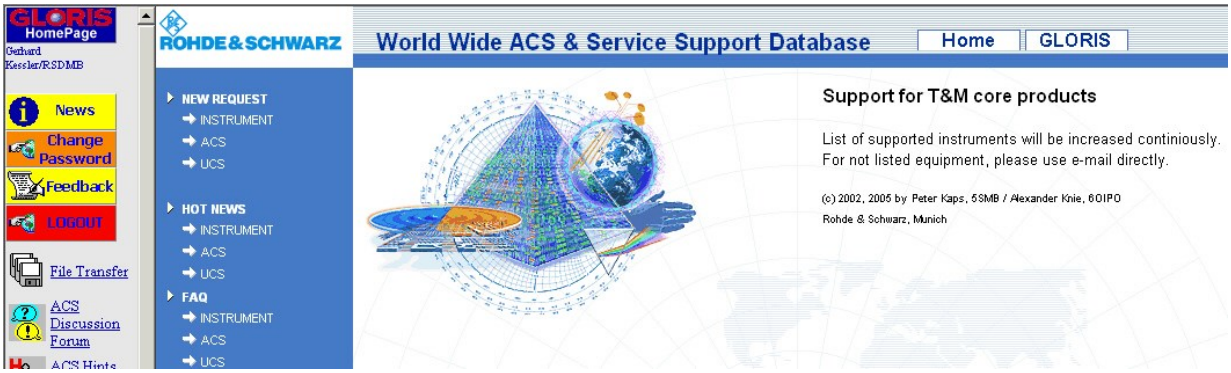
8.1 Trouble with Hardware or Software

8.1.1 World Wide ACS & Service Support Database

Since mid 2002 a new Support Database has been installed.

Because of pre defined information masks it is guaranteed that all necessary inputs are supplied to the ACS/UCS Team which makes a much more effective and faster support handling possible.

Please use this database only for future service requests.



ROHDE&SCHWARZ

Plant Memmingen

Rohde & Schwarz Messgerätebau GmbH
Rohde-und-Schwarz-Str. 1
D-87700 Memmingen

PO Box 1652 D-87686 Memmingen

FAX	(+49) / 08331 / 10-81767
E-mail	TMG5-Support@rohde-schwarz.com

9 Appendix

A Shortcuts

A.1 Test Manager

Create, Save and Load

Shortcut	Description
Ctrl-N	**Create user test sequence**
Ctrl-L	**Load user test sequence**
Ctrl-S	**Save user test sequence**

Editing

Shortcut	Description
Ctrl-D	Open the configuration database editor
Ctrl-E	Edit test program (1)
Shift-Ctrl-E	Edit test report template (1)
Ctrl-B	Edit test program and test report template (1)
Ctrl-C	Copy selected test sequences and tests (2)
Ctrl-V	Past copied test sequences and tests (2)
DEL	Delete selected test sequences and tests (2)
Ctrl-D	Open the configuration database editor
F2	Rename selected user test sequence (2)

(1) only available within the development mode
(2) only available if the test sequence tab is focused

Executing

Shortcut	Description
Ctrl-M	Execute Master Test Sequence
Ctrl-A	Execute Master Test Sequence Appendix
Enter	Execute selected test or test sequence (1)
Ctrl-Enter	Execute the remaining test of the selected test sequence (1)
Shift-Ctrl-Enter	Execute the current test sequence completely but start with the selected test (1)

(1) only available if the test sequence tab is focused

Test Report

Shortcut	Description
Ctrl-R	Open customer test report of current device
Ctrl-T	Open test overview of current device
Shift-Ctrl-R	Open test report of selected tests

Help

Shortcut	Description
F1	Open help
Shift-F1	Open help and show selected topic

Miscellaneous

Shortcut	Description
Ctrl-I	Show additional information of the selected test (1)
Ctrl-+	Expand selected test sequence (1)
Ctrl—	Collapse selected test sequence (1)
Ctrl-*	Expand test sequence tree (1)
Ctrl-/	Collapse test sequence tree (1)

(1) only available if the test sequence tab is focused

A.2 Test Report Manager

General Shortcuts

Shortcut	Description
Alt-F4 / Alt-C / Esc	Close Window
Alt-Z	Show zoom menu
Alt-P	Print test report or test overview
Alt-X	Export test report
Alt-R	Show test report printout mode dialog
Shift-P	Show print menu
Alt-B	Show test report front page data dialog
F1	Open help
Ctrl-C	Copy current page as vector graphics to clipboard
Ctrl-D	Copy data to clipboard
Alt-E	Open settings dialog
Alt-N	Transfer of measurement

Test Report Area Shortcuts

Shortcut	Description
Page Up	Move up 1 page
Page Down	Move down 1 page
Up, Down, Left, Right	Scroll a zoomed page
Mouse Wheel	Scroll test report
Shift-Mouse Wheel	Scroll page by page
Shift-Left Mouse Key	Up 1 page
Shift-Right Mouse Key	Down 1 page
Ctrl-Home	Beginning of test report
Ctrl-End	End of test report
Ctrl-Left Mouse Key / Ctrl-Up / +	Zoom in page
Ctrl-Right Mouse Key / Ctrl-Down / –	Zoom out page
Ctrl-Mouse Wheel	Zoom page
Pressed Left Mouse Key	Move visible area of test report
Alt-Left Mouse Key (within graphics only)	Open a window containing the graphic (The data of the graphic can be manipulated and copied)
Ctrl-F	Open find dialog
F3	Find next
Ctrl-G	Go to page

Overview Area Shortcuts

Shortcut	Description
Up, Down, Left, Right	Select cell
Ctrl-Up	Show 1st line
Ctrl-Down	Show last line
Mouse Wheel	Scroll list
Alt-O	Show Table of Contents tab
Alt-V	Show Test Overview tab
Alt-F	Show Test Report Meta Data tab
Home	Select 1st cell of current line
End	Select last cell of current line
Ctrl-Home	Select 1st cell of 1st line
Ctrl-End	Select last cell of last line
Ctrl-N	Hide info area and overview area
Ctrl-M	Show info area and overview area
Ctrl-O	Optimize column number of list tab
+	Expand the Table of Contents tab
–	Collapse the Table of Contents tab

Overview Area Shortcuts of Test Overview

Shortcut	Description
Alt-L	Show list tab
Alt-T	Show table tab
Space	Check/uncheck current test of list tab (1)
Ctrl-Space	Check/uncheck all tests of list tab (1)
Left Mouse Key Double Click on a Test	Start a test of list tab (1)
Alt-S	Enhance/reduce the columns of list tab

(1) only available within the Test Overview

B Document History

Document Version	Hint	Link
01.11	New format layout has been implemented.	
01.12	Calibration Document described	Calibration Document (optional)
	Equipment Viewer described	Equipment Viewer

10 Glossary

C

Customer Test Report: Test Report containing all Tests provided for the customer

D

Device Test: Entirety of Tests required to determine the presence, quality, or truth of all DUT properties

M

Master Test Sequence: Test Sequence containing all Tests which are required for a Device Test and can be performed automatically without user intervention.

Master Test Sequence Appendix: Test Sequence containing all Tests which are required for a Device Test and need user intervention.

T

Test: Smallest executable procedure for critical evaluation. A means of determining the presence, quality, or truth of DUT properties.

Test Application: Combination of Test Management Software and Test Program.

Test Management Software: Entirety of runtime environment, drivers and components required to perform a Device Test.

Test Manager: Software program providing a GUI to perform Tests and controlling the test procedure.

Test Overview: Test Report containing the Tests of the Master Test Sequence and the Master Test Sequence Appendix.

Test Program: Software program controlling the Test System and the DUT to perform a Device Test.

Test Report: Document presenting the Test results in detail.

Test Report Manager: Software program administrating and displaying the Test results.

Test Sequence: Collection of Tests.

Test System: Entirety of instruments and measurement equipment used to perform a Device Test.

11 Abbreviation

DUT	Device Under Test
GUI	Graphical User Interface
ISO	International Organization for Standardization
POP	Product Online Profile
QIS	Quality Information System
TM G5	Test Management Software G5
TP	Test Program
UCS	Universal Calibration System
UGB	Uncertainty Guard Band

12 Index