

User Manual

Test Management Software G5



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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

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Contents

Contents	3
Important User Information	8
1 INTRODUCTION	9
2 BASIC USAGE OF THE TM G5	10
Starting the Test Program	11
Licensing the TM G5	12
Distribution of Software Options	14
Smartcard Solution	14
MAC Address Solution	15
Evaluation Version	16
Elements of the TM G5 Desktop	17
Menu and Toolbar	17
Menu Overview	17
Toolbar Overview	20
Navigation Bar	22
Meta Data	23
Test Information	24
Test Sequences Tab	24
Test Info Tab	26
Device Summary Tab	27
Information Panel	29
Status Line	29
Interrupt Panel	31
Common Interrupt Panel Controls	31
Additional Interrupt Panel Controls	32
Preliminary Settings	34
Desktop Orientation Settings of the Standard Desktop	34
Language	35
User Name	36
Test System Name	37
Test Adapter Serial Number	37
Test Adapter Modification Index	38
Setting up DUT and Test Configuration	39
Filling in DUT specific Data	41
Filling in Test specific Data	43
Tests and Test Sequences	44
Predefined Test Sequences	44
User defined Test Sequences	45
Performing a complete DUT Test	50
Performing the Master Test Sequence	50

Performing the Master Test Sequence Appendix.....	51
Performing the Test Overview Test Sequence.....	52
Information about the executed Test.....	53
Information about the Test Result State.....	54
Filling in Test Report Front Page Data.....	54
Automatic Test Report Front Page Data Query.....	56
Viewing the Test Overview.....	57
Repeating Tests by using the Test Overview.....	59
Performing a Single Test.....	61
Using the TM G5 Desktop.....	61
Using the Test Overview.....	61
Interrupting and Aborting a Test Sequence.....	62
Continuing a previously aborted Test Sequence.....	62
Continuing a Test Sequence using the TM G5 Desktop.....	63
Continuing a Test Sequence using the Test Overview.....	64
Continuing a Test Sequence after a different DUT has been loaded.....	65
Performing an Outgoing Test.....	66
Terms and Abbreviations in Test Reports.....	67
Handling of Test Reports.....	68
Customer Test Report of current DUT.....	68
Customer Test Report of specific Device.....	68
Test Report of selected Tests.....	70
Test Report Window.....	72
Info Area.....	72
Overview Area.....	73
Test Overview Tab.....	74
Table of Contents Tab.....	77
Test Report Meta Data Tab.....	77
Test Report Area.....	78
Zoom Area.....	79
Status Line.....	80
Toolbar.....	80
Close the Test Report.....	80
Printing the Test Report.....	80
Creating a PDF Output.....	81
Using additional Test Report Printout Modes.....	83
Editing the Front Page Data.....	85
Transfer the Measurement File.....	85
Zooming the Test Report Area.....	86
Extended Test Overview Tab.....	87
Searching in the Test Report.....	87
Test Report Settings.....	88
Measurement Window.....	89
Zooming the Measurement Window.....	90
Customizing the Measurement Window.....	90
Showing/Hiding the Window Title.....	90
Showing/Hiding the Window Header.....	90
Showing/Hiding the Status Bar.....	91
Customizing a Chart.....	91

Scaling a Chart.....	91
Moving a Chart.....	92
Zooming a Chart (Graphics Zoom).....	92
Zooming a Chart (Axis Zoom).....	92
Resetting a Chart.....	92
Displaying Values of a Chart.....	93
Teaching the Measurement Window.....	93
Layout and Content of printed Test Reports.....	94
Page 1 (front page):.....	94
Page 2.....	95
Page 3.....	96
Transfer of Measurement Files.....	98
Transfer Settings.....	99
Automatic e-mail dispatch.....	100
Automatic Transfer.....	101
Manual Transfer.....	102
Encoding of transferred Measurement Files.....	102
Measurement File Repository.....	103
3 EXTENDED FEATURES OF THE TM G5.....	104
Using the Additional Test Mark.....	104
Working with Breakpoints.....	106
Definition of the Test Procedure.....	108
Multiple Device Testing Mode.....	109
Endless Option.....	111
Delayed Test Sequence Execution.....	112
Working with Test Iterations.....	114
Automatic Configuration Database Update.....	119
Exporting the Measurement Data.....	120
Creating and Deleting a Measurement File.....	122
Creating a temporary Measurement File.....	123
Encoding of the Measurement File Name.....	123
Tracing the Test Process.....	124
Automatic Test System Shutdown.....	125
State Indicator Panel.....	126
Test System Mode.....	127
Test Family and Test Cycles.....	128
Synchronization and Backup.....	130
Creating an individual Test Report.....	131

Using the Smart Desktop.....	133
Generating QIS entries automatically	135
Getting Help	136
Test Hints.....	136
Start-up Information	136
Test System	136
Test Program	137
Test Application State.....	137
Product Information.....	138
4 EXTENDED OPTIONS.....	139
Test Report Options	139
Common Settings	139
Test Overview Settings for Report Representation.....	140
Further Settings.....	142
Automatic Actions	146
Automatic Transfer Settings.....	146
Automatic Front Page Edit	146
Further Settings.....	146
Configuration Database Editor Options.....	147
Settings.....	147
5 OBSOLETE FEATURES OF THE TM G5	148
Activating the TM G5.....	148
6 ADDITIONAL TOOLS.....	150
Tweak TM G5.....	150
Equipment Editor.....	152
Process Tracing Viewer.....	153
Tool Center.....	155
Report Print.....	156
Statistic Viewer.....	157
Manual QIS Input	158
BDV (Board Data Viewer).....	159
Delivery Dialog.....	160
Test Application State Indicator	161
7 SERVICE SUPPORT	163

Trouble with Hardware or Software	163
World Wide ACS & Service Support Database	163
8 APPENDIX	165
Glossary	165
Abbreviations.....	166
Shortcuts	166
Test Manager	166
Create, Save and Load	166
Editing.....	166
Executing.....	167
Test Report.....	167
Help	167
Miscellaneous.....	167
Test Report Manager.....	168
General Shortcuts	168
Test Report Area Shortcuts.....	168
Overview Area Shortcuts	169
Overview Area Shortcuts of Test Overview	169
Document History.....	170

Important User Information

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



Warning: pay close attention!



Index finger to indicate important details!



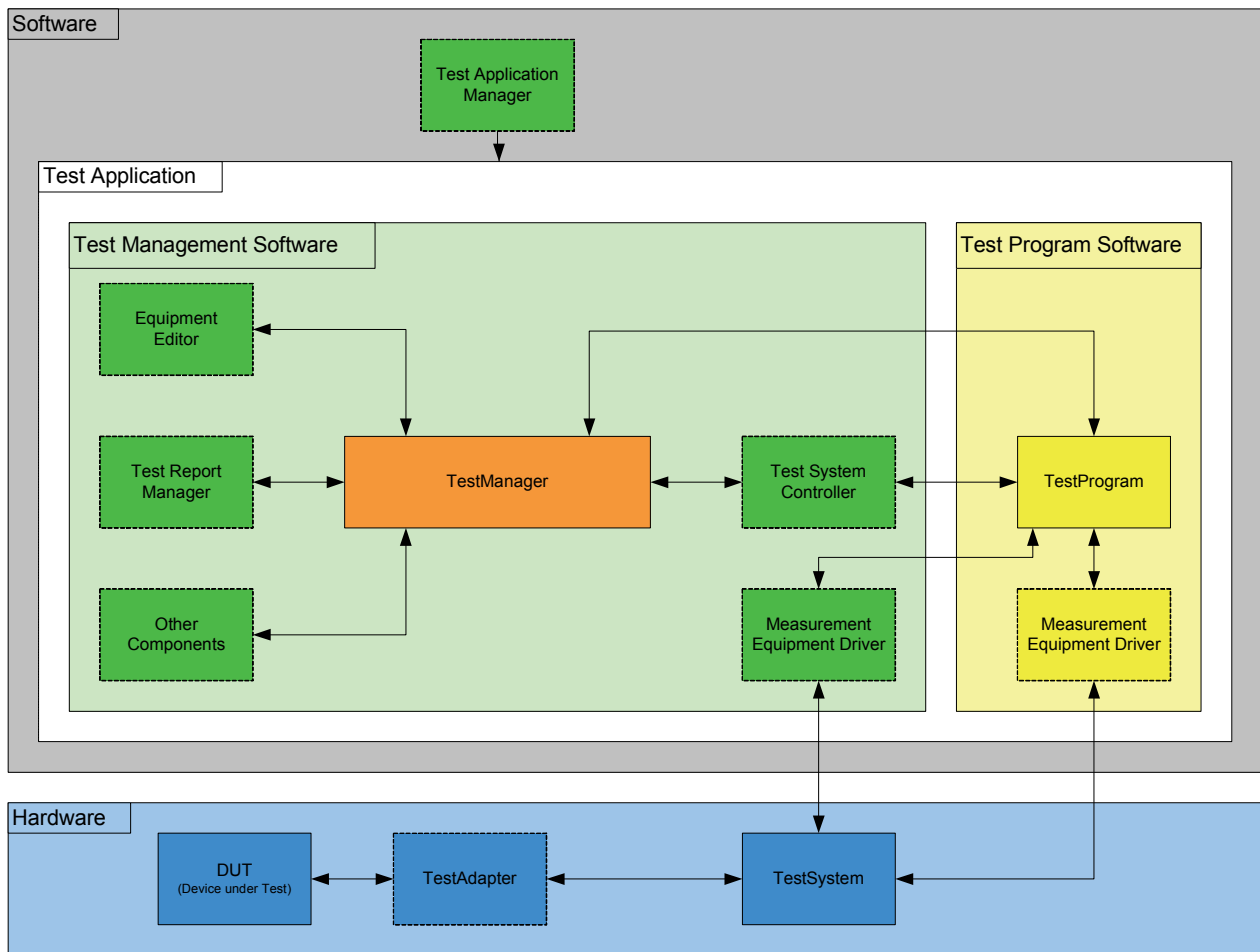
Working step to indicate order of tasks to be performed!

User entries and actions are marked with ►.

Hyperlinks are provided with an additional page number, e.g. [p. 2.45] means page 45 in chapter 2.

1 Introduction

The Test Management Software (Generation 5), or more easily named TM 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 the TM G5 environment, to work successfully. The TM 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.

2 Basic usage of the TM G5

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



Note:

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.

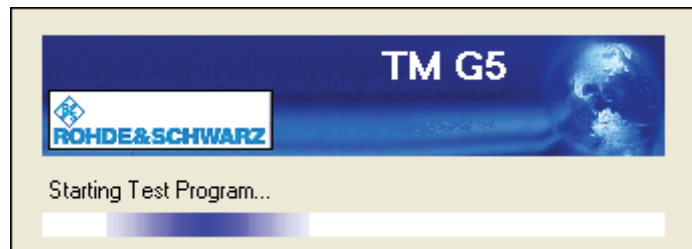
The following sections describe the program start and measurements.

Starting the Test Program

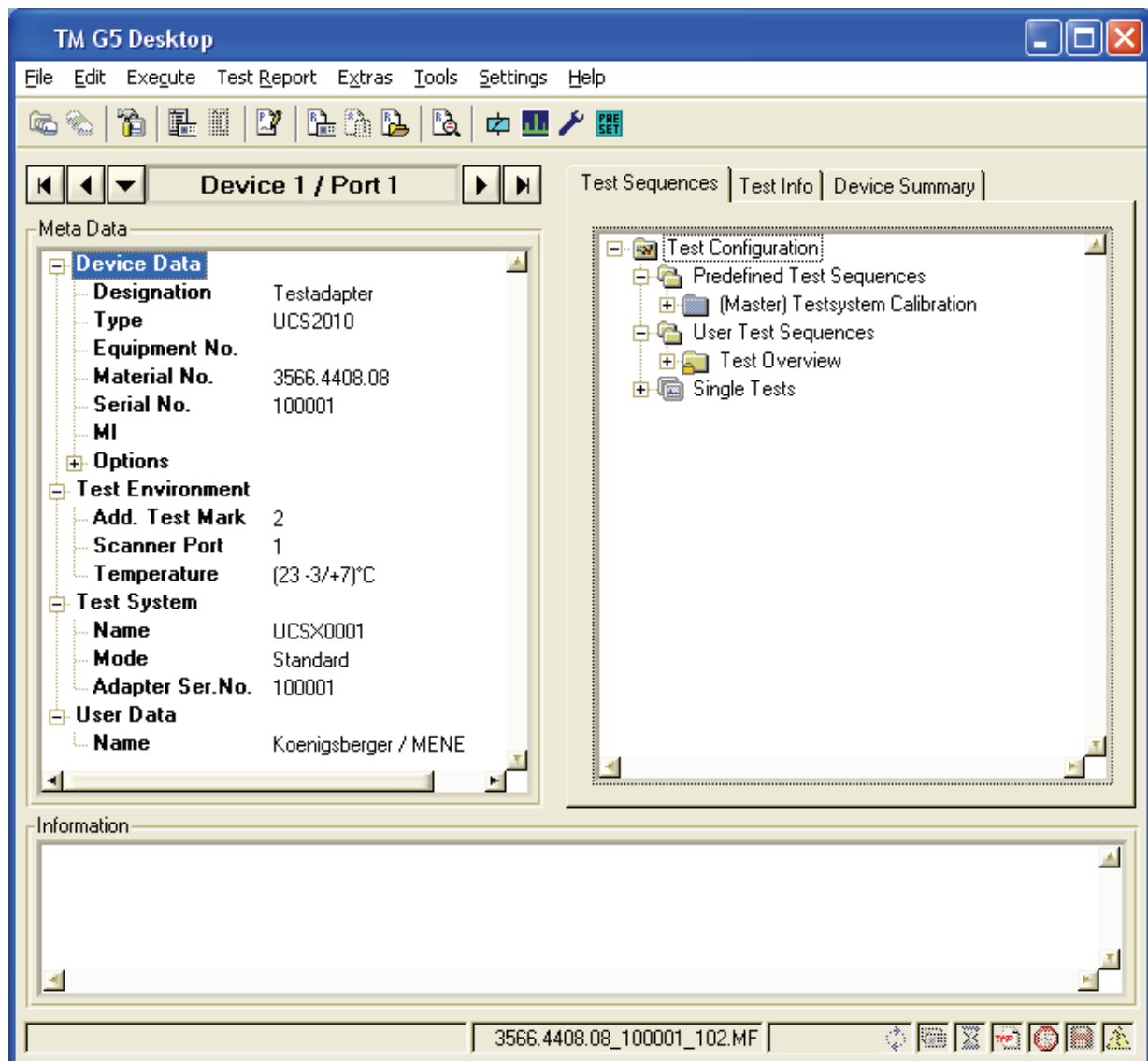
The TM G5 is not intended to run as a standalone package. The TM G5 runs in the background with a specific DUT Test Program.

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

- ▶ A double click on the icon presented by the Test Program (e.g. UCS2010 for SMU/SMA or UCS2150 for CMU/CRTU) will start the Test Program.



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



Licensing the TM G5

Licensing is the process of obtaining and installing Software Options and the appropriate Option Keys to enable TM G5 to run on your computer. The licensing replaces the old [Activation Mechanism](#) [p. 5.148].

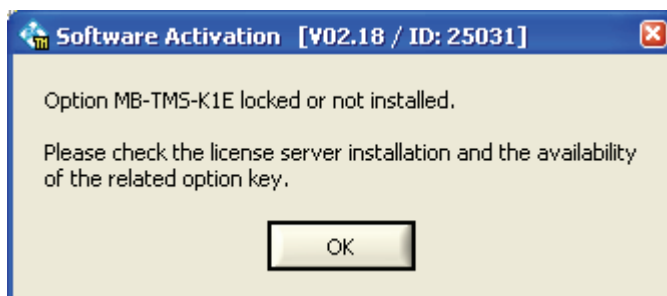
At least two software options are required to run the TM G5; the option **MB-TMS-K1B TMS Base** and either the option **MB-TMS-K1S TMS Standard** or the option **MB-TMS-K1E TMS Enterprise**. For further information see the table below.

Software Option	Description
MB-TMS-K1B TMS Base	Software option that activates the TM G5 Base Package. Additional to the base package either the Standard Package or the Enterprise Package must be activated to get the TM G5 running.
MB-TMS-K1S TMS Standard	Software option that activates the TM G5 Standard Package. The Standard Package permits you to perform tests, create test reports and start the Additional Tools [p. 6.150]. <u>Note:</u> The Base Package must also be activated to get the TM G5 running.
MB-TMS-K1E TMS Enterprise	Software option that activates the TM G5 Enterprise Package. The Enterprise Package permits you to perform tests, create test reports and start the Additional Tools [p. 6.150]. Additionally, the access to the TM G5 Development Libraries is enabled. The TM G5 Development Libraries are used to develop Test Programs. <u>Note:</u> The Base Package must also be activated to get the TM G5 running.



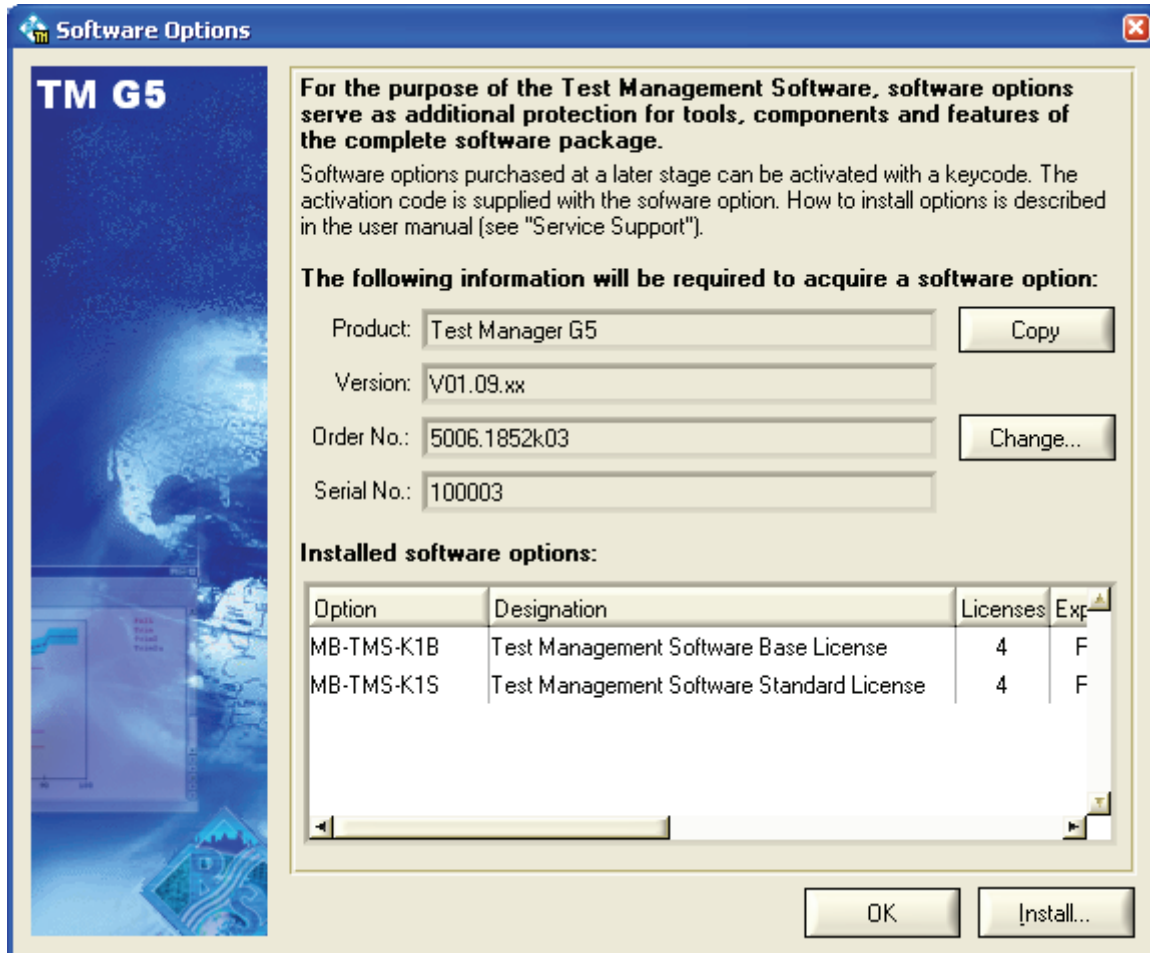
Note: Besides the TM G5 also Test Programs can assume Software Options. These options must be available as well.

The RS License Manger verifies the Software Options. If the check fails a message will be displayed.

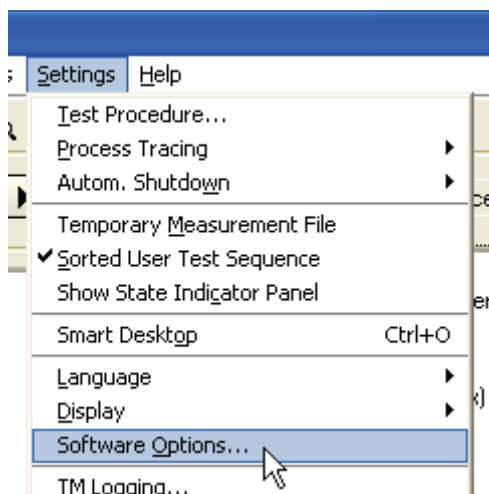


The RS License Manager is installed automatically. It is an inherent part of the TM G5 installation.

The Software Options Dialog is used to inspect the status of the available options and to install or remove options.



- ▶ Use the **Software Options** command of the menu bar to open the Software Options Dialog



Distribution of Software Options

Depending on the TM G5 installation two ways are available to distribute Software Options, the so-called **Smartcard Solution** and the **MAC Address Solution**.

Smartcard Solution

The Software Options and the appropriate Option Keys are written to a smartcard. Two smartcard formats are available. The ID-1 format, the so-called **Check Card Format**, and the ID-000 format, the so-called **SIM Card Format** (see ISO 7816 for further information).



Smartcard in Check Card form
with relevant card reader



Smartcard in SIM Card form
with relevant card reader



Note: Both card readers can be obtained via the standard Rohde & Schwarz purchase channels. For more information contact the [Service Support](#) Centre [p. 7.163].

The smartcard must be inserted into a card reader and the card reader must be connected to your computer to get the TM G5 running.

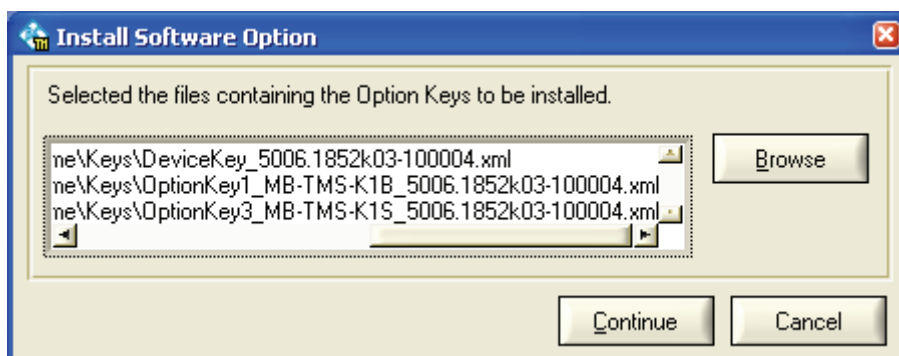
No installation of the Software Options is required. Therefore, the **Install** button of the [Software Option Dialog](#) [p. 2.13] is disabled.

E-mail your Software Option request to the [Service Support](#) Centre [p. 7.163]. To generate a Option Key for a Software Option the Product Name, Product Version, Order Number and Serial Number are required. The **Copy** button of the [Software Option Dialog](#) [p. 2.13] can be used to copy this information to the clipboard.

MAC Address Solution

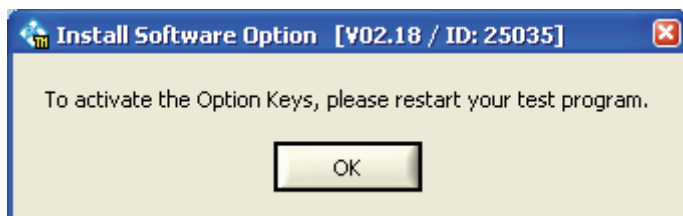
The Software Options must be installed on your computer.

- 1 Use the **Install** button of the [Software Option Dialog](#) [p. 2.13] to start the installation.
- 2 Select the Option Key installation scripts and continue.



Note: The Option Key installation scripts can be requested at the [Service Support Centre](#) [p. 7.163]. To generate the installation script the MAC Address, Product Name, Product Version, Order Number and Serial Number are required. The **Copy** button of the [Software Option Dialog](#) [p. 2.13] can be used to copy this information to the clipboard.

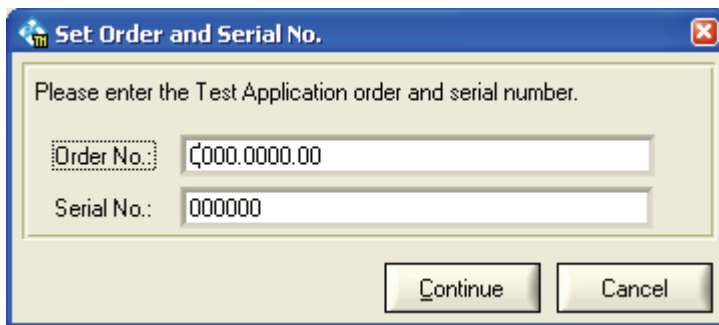
- 3 Restart your Test Program to finish the installation.



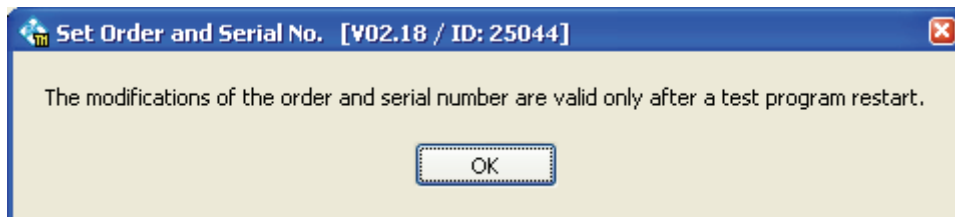
Evaluation Version

If the evaluation version has been installed, the function of the Test Management Software is limited, e.g. no test can be performed. In order to obtain the complete functionality, enter a valid order number and serial number.

- 1 Select the **Change** button of the [Software Option Dialog](#) [p. 2.13].
- 2 Enter a valid order number and serial number and continue.

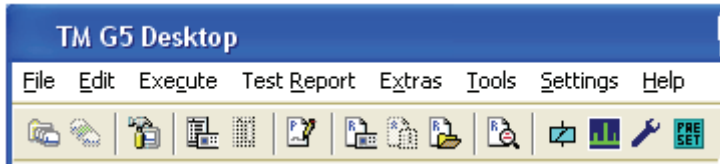


- 3 Restart your Test Program to apply the order number and serial number.



Elements of the TM G5 Desktop

Menu and Toolbar



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

Menu Overview



Note: 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	[p. 2.45]
	Measurement file	[p. 3.122]
	Load	
	User Defined Test Sequence...	[p. 2.48]
	Configuration Database ²⁾	
	Test Program... ²⁾	
	Save	
	User Defined Test Sequence	[p. 2.47]
	Save As	
	User Defined Test Sequence...	[p. 2.47]
	Save Copy As	
	User Defined Test Sequence...	[p. 2.47]
	Delete	
	User Defined Test Sequence...	
	Selected	[p. 2.49]
	Stored...	[p. 2.49]
	Measurement File	[p. 3.122]
	Exit	

Edit		
	Configuration Database	
	Open Editor...	[p. 2.39]
	Update...	
	Test Report Front Page...	[p. 2.54]
	User...	[p. 2.36]
	Test System Name...	[p. 2.37]
	Test Adapter Ser. No... ¹⁾	[p. 2.37]
	Test Adapter MI... ¹⁾	[p. 2.38]

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

²⁾ Not yet implemented

Execute		
	Master Test Sequence	[p. 2.50]
	Master Test Sequence Appendix	[p. 2.51]
	Test Overview Test Sequence	[p. 2.52]
	Continue	

Test Report		
	Customer Report	
	Current DUT	[p. 2.68]
	DUT...	[p. 2.68]
	Test Overview...	[p. 2.57]
	Report...	[p. 3.131]
	Selected Tests/Sequences...	[p. 2.70]

Extras	
	<Test Program defined Items>

Tools		
	Measurement Files	
	Transfer...	[p. 2.85]
	Retransfer...	[p. 2.85]
	Measurement Data Export...	[p. 3.120]
	Equipment Editor... ¹⁾	[p. 6.152]
	Process Tracing Viewer... ¹⁾	[p. 6.153]
	Tool Center... ¹⁾	[p. 6.155]
	Report Print... ¹⁾	[p. 6.156]
	Statistic Viewer... ¹⁾	[p. 6.157]
	Manual QIS Input... ¹⁾	[p. 6.158]
	BDV... ¹⁾	[p. 6.159]
	Delivery Dialog... ¹⁾	[p. 6.160]

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

Settings		
	Test Procedure...	[p. 3.108]
	Process Tracing	
	Recording	[p. 3.124]
	Record next System Startup	[p. 3.124]
	Display...	[p. 3.124]
	Autom. Shutdown	
	Active	[p. 3.125]
	Time...	[p. 3.125]
	Temporary Measurement File	[p. 3.123]
	Sorted User Test Sequence	[p. 2.47]
	Show State Indicator Panel	[p. 3.126]
	Smart Desktop	[p. 3.133]
	Language	
	German	[p. 2. 35]
	English	[p. 2. 35]
	Display ¹⁾	
	Compact Alignment	[p. 2.34]
	Vertical Alignment	[p. 2.34]
	Horizontal Alignment	[p. 2.34]
	Software Options...	[p. 2.12]
	TM Logging... ³⁾	
	QIS ¹⁾	
	Generate Entries automatically	[p. 3.135]
	Update	[p. 3.135]
	Temperature and Humidity Logging ¹⁾²⁾	

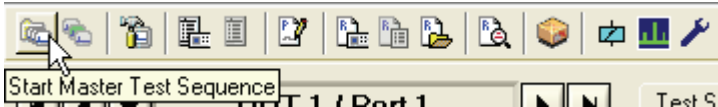
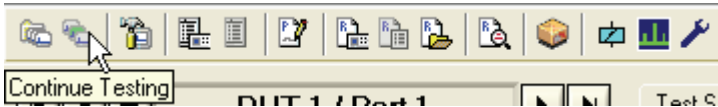
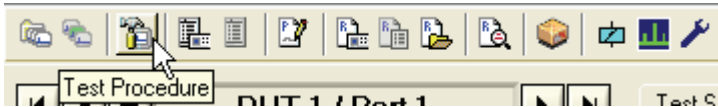

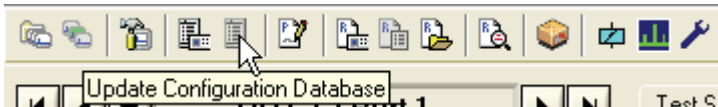

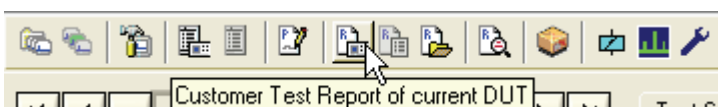
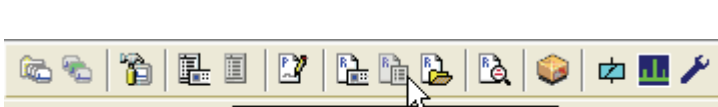

Help		
	Test Hints	[p. 3.136]
	Start-up Information	[p. 3.136]
	Test System	[p. 3.136]
	<Test Program defined Items>	
	Test Program	[p. 3.137]
	<Test Program defined Items>	
	Contents	
	Direct Help	
	Test Application State	[p. 3.137]
	About TM	[p. 3.138]

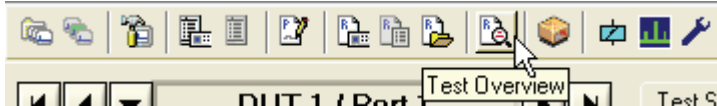
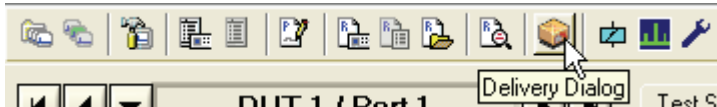
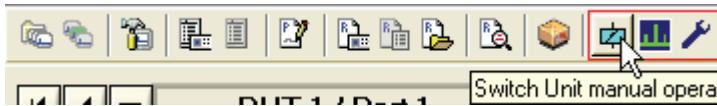
¹⁾ Depending on the Test Application configuration the item might be invisible

²⁾ Not yet implemented

³⁾ Locked, only accessible for Test Manager developers

Toolbar Overview

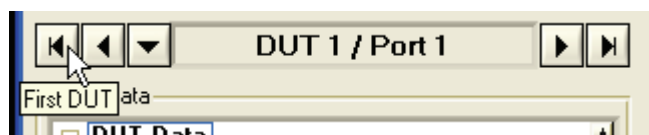
Toolbar Item	Description	Add. Information
	Starts the Master Test Sequence	Performing the Master Test Sequence [p. 2.50]
	Continues an interrupted test sequence	Interrupting and Aborting a running Test Sequence [p. 2.62]
	Opens the Test Procedure dialog	Definition of the Test Procedure [p. 3.108]
	Opens the Configuration Database editor	Setting up DUT and Test Configuration [p. 2.39]
	Triggers the Test Program to update the Configuration Database	
	Opens the Test Report Front Page dialog	Filling in Test Report Front Page Data [p. 2.54]
	Opens the Test Report of the current device	Test Report of current Device [p. 2.68]
	Opens the Test Report displaying the selected tests of the current device	Customer Test Report of current Device [p. 2. 68]
	Opens the Measurement File Selection dialog to display the test report of a tested device	Customer Test Report of specific Device [p. 2.68]

Toolbar Item	Description	Add. Information
	<p>Opens the Test Overview of the current device</p>	<p>Viewing the Test Overview [p. 2.57]</p>
	<p>Opens the Delivery Dialog ¹⁾</p>	
	<p>Starts a DUT specific test/initialization routine or displays a DUT specific panel</p>	

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

Navigation Bar

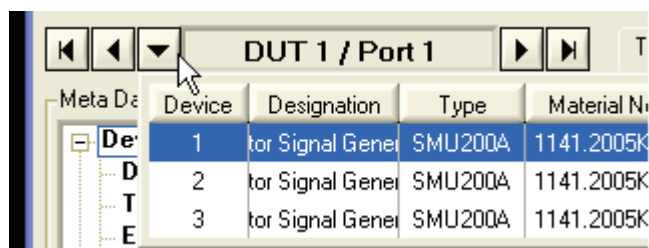
The navigation bar is used to select the current DUT. Each device of the device list can be selected. Adding a device to the device list is described in [Setting up DUT and Test Configuration](#) [p. 2.39] and [Multiple Device Testing Mode](#) [p. 3.109].



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.



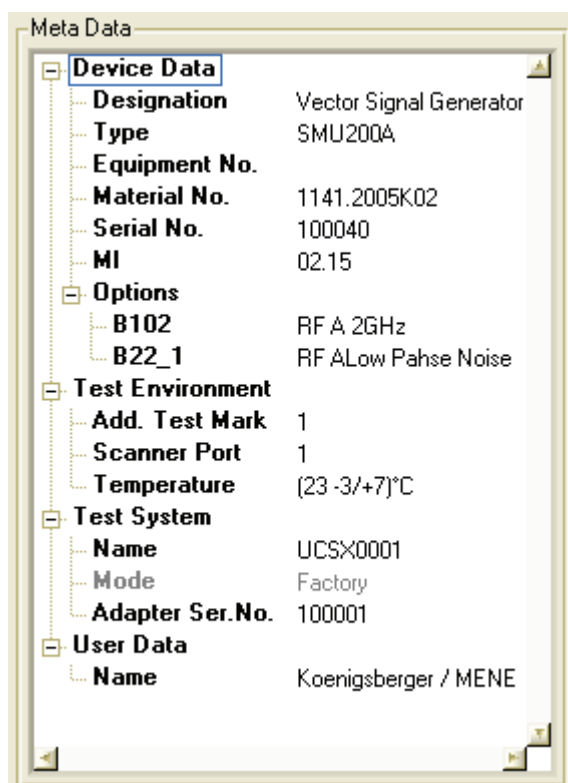
The last device of the device list is set to the current device.

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 [Setting up DUT and Test Configuration](#) [p. 2.39].

 **Note:** Device data which are not editable are dimmed.

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



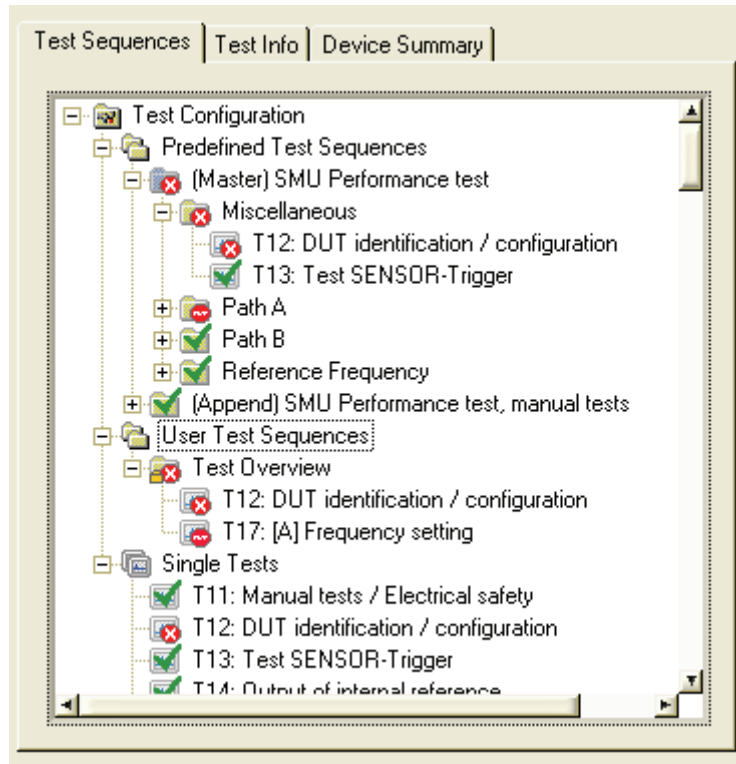
Some data, e.g. the MI (Modification Index), have relevance for production only, so the related fields may be empty in service mode.

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


Test Information

The main part of the TM 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.








Test Sequences Tab








The Test Sequence 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.









 **Note:** 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

-  **Note:** An **blue folder** indicates that the corresponding test sequence is the Master Test Sequence.
-  **Note:** 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.
-  **Note:** 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.

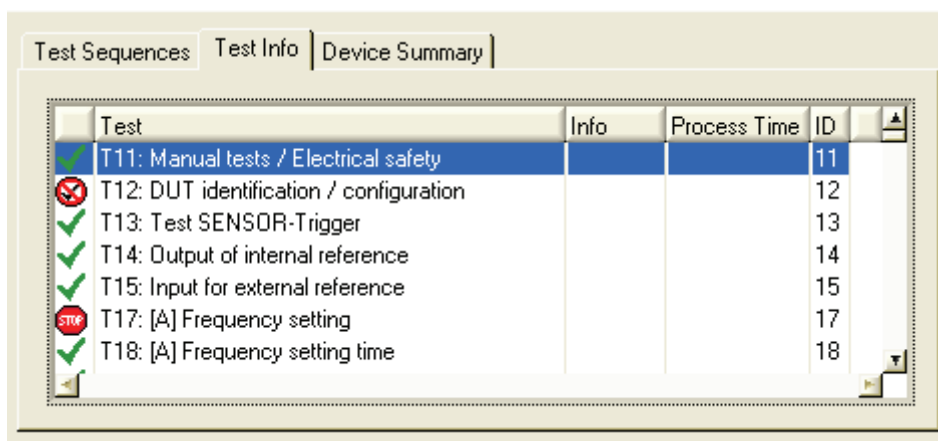
Test State Icons:

-  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

-  **Note:** An orange frame color  indicates the existence of child tests. For further information see [Test Family and Test Cycles](#) [p. 3.128].
-  **Note:** 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 chapter [Tests and Test Sequences](#) [p. 2.44].

Test Info Tab



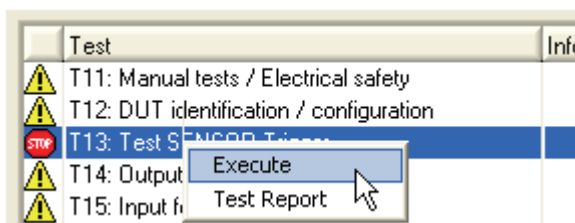
The Test Info Tab displays information about all tests of the current DUT. The status of the test sequences and tests are indicated by easily understood icons. The columns *Test*, *Info*, *Process Time* and *ID* are supplied by the Test Program and can, therefore, remain unfilled.

Test State Icons:

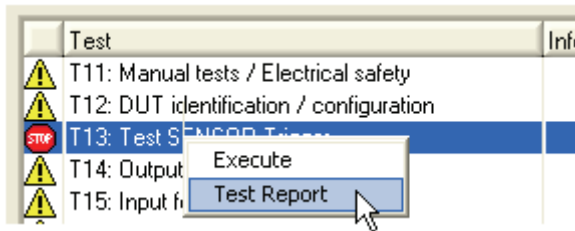
-  Test not yet executed
-  Test result PASS
-  Test result INVALID
-  Test result ABORTED
-  Test result FAILED
-  Test result UGB
-  Test will be skipped


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](#) [p. 2.68] 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.











 **Note:** The **Test Report** command of a test that will be skipped is disabled.

Device Summary Tab

Current State	Intermediate Status	Port	Device	Material No.	Serial No.	Type	Designation	Cycle
	PASSED	1	1	1141.2005K02	100040	SMU200A	Vector Signal Generator	7 of 7
	PASSED	2	2	1141.2005K02	100041	SMU200A	Vector Signal Generator	5 of 7
	FAILED	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](#) [p. 2.50] of all registered devices. The status is indicated by easily understood icons. Registering a device, see [Multiple Device Testing Mode](#) [p. 3.109].

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 [Test Family and Test Cycles](#) [p. 3.128].

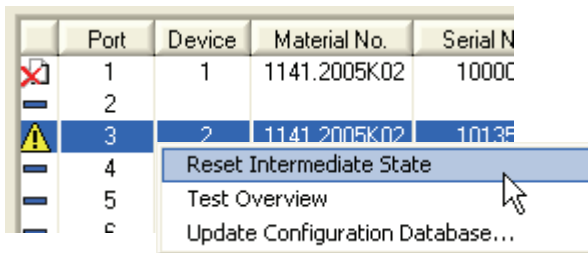
Furthermore, the Current Test State and the Intermediate Test State of the [Master Test Sequence and Master Test Sequence Appendix](#) [p. 2.50] are shown.

The Current Test State is determined by TM 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.

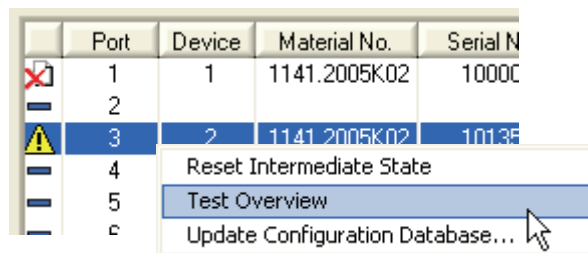
The Intermediate Test State can be used to monitor the test state within a certain time period. The determination of this state is equivalent to Current Test State determination (Exception: the values UNTESTED and INVALID are not considered). But the test program user can reset the Intermediate Test 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](#) [p. 2.57] and to modify device data.

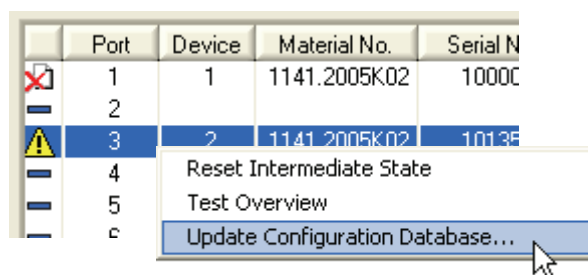
- ▶ Use the **Reset Intermediate State** command to reset the Intermediate Test State of the selected device.



- ▶ 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.

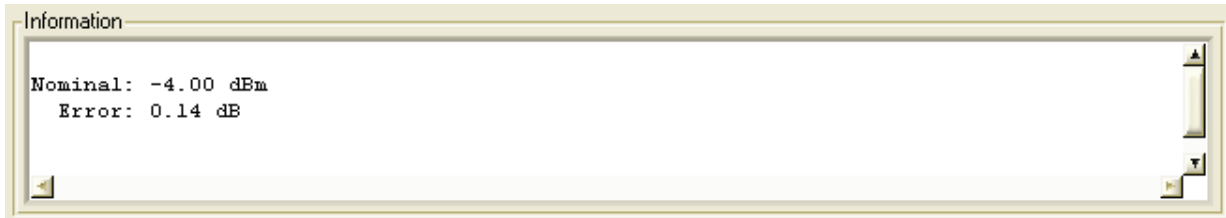


- ▶ Use the **Update Configuration Database** command to open the [Configuration Database Editor](#) [p. 2.39] while a test is running. The [Endless Option](#) [p. 3.111] of the [Multiple Device Testing Mode](#) [p. 3.109] must be switched on.



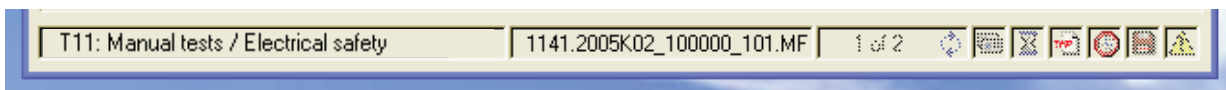
Information Panel

This area displays basic information concerning the current test step.

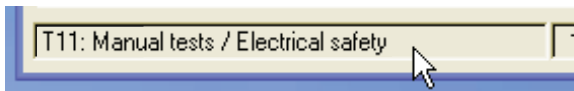
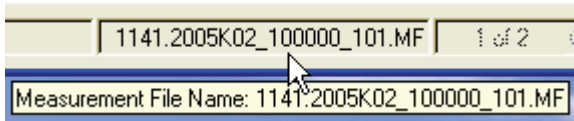
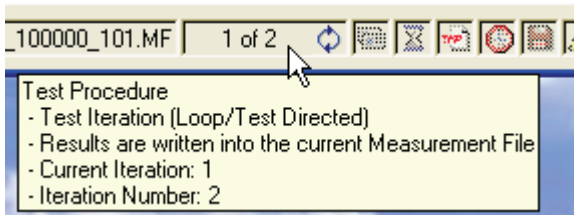


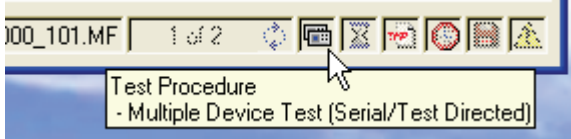
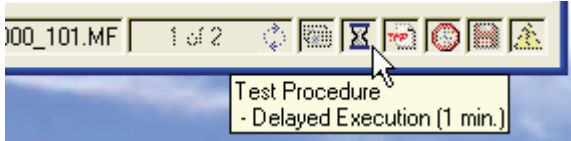


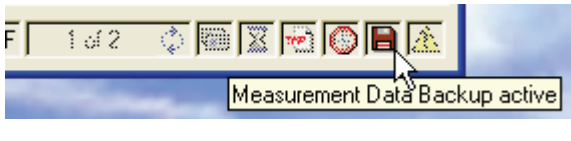

Status Line

Some of the mode settings are directly visible and maybe set in the status line on the bottom of the TM G5 Desktop. Additionally, the current test is displayed in the status line. Depending on the [Desktop Alignment](#) [p. 2.34] 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.	Desktop Orientation Settings of the Standard Desktop [p. 2.34]
	Condition of test procedure concerning the test iteration.	Working with Test Iterations [p. 3.114]
	A double click on the symbol toggles the test iteration, on or off.	

Status Line Item	Description	Add. Information
	<p>Condition of test procedure concerning the multiple device test.</p> <p>A double click on the symbol toggles the multiple device test, on or off.</p>	<p>Multiple Device Testing Mode [p. 3.109]</p>
	<p>Condition of test procedure concerning the moment of test execution.</p> <p>A double click on the symbol toggles the delayed test execution, on or off.</p>	<p>Delayed Test Sequence Execution [p. 3.112]</p>
	<p>Condition of measurement file creation.</p> <p>A double click on the symbol toggles the temporary measurement file creation, on or off.</p>	<p>Creating a temporary Measurement File [p. 3.123]</p>
	<p>Condition of process tracing.</p> <p>A double click on the symbol toggles the process tracing, on or off.</p>	<p>Tracing the Test Process [p. 3.124]</p>
	<p>Condition of measurement data backup or synchronization.</p>	<p>Synchronization and Backup of Measurement Files [p. 3.130]</p>
	<p>Current system condition.</p> <p>The tool tip will display internal, not critical warnings if available.</p>	















Interrupt Panel



The TM 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 [Working with Breakpoints](#) [p. 3.106].
-  Break on Test Point. For further information see [Working with Breakpoints](#) [p. 3.106].
-  Break on Curve. For further information see [Working with Breakpoints](#) [p. 3.106].
-  Break on Test. For further information see [Working with Breakpoints](#) [p. 3.106].
-  Progress Beam indicating a running test.
-  Power Switches the test system power.

Additional Interrupt Panel Controls

Further Interrupt Panel settings available only through the context menu.



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

Position

- ▶ Use the position commands from the context menu to position the Interrupt Panel on the top, left, bottom or right of the desktop.

Breakpoints

Additional to the common breakpoints (see above) further breakpoints controlled by events can be initiated. For further information see [Working with Breakpoints](#) [p. 3.106].

- ▶ 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 store TM G5 specific data.

The export items are for experts. The exported TM 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 with TM 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.

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.



Note: The Test Application configuration tool [Tweak TM G5](#) [p. 6.150] 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.

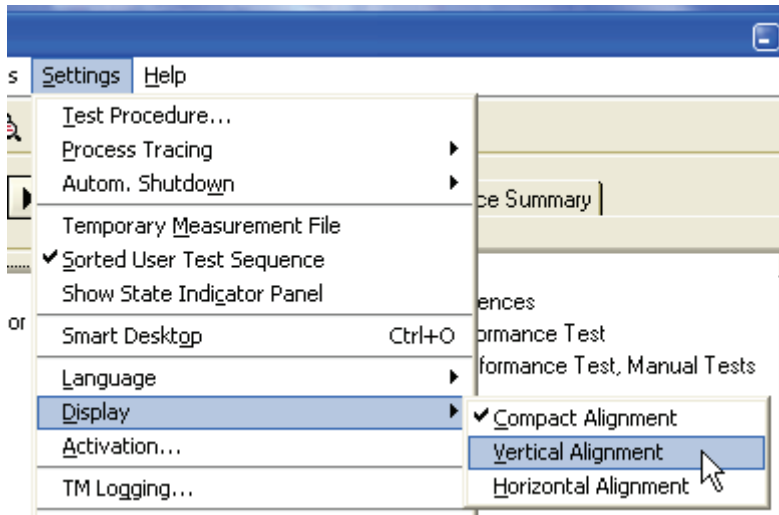
Exit

- ▶ Use the **Exit** command from the context menu to exit the test application.

Preliminary Settings

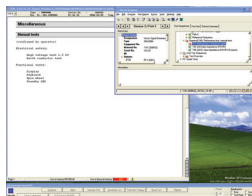
Desktop Orientation Settings of the Standard Desktop

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



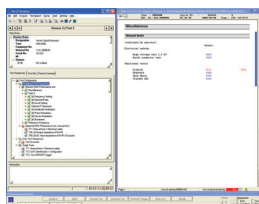
Description

Add. Information



Compact Alignment:

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



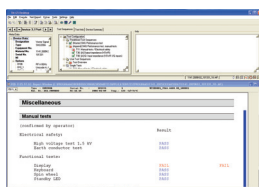
Vertical Alignment:

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

[Meta Data](#) [p. 2.23]

[Test Information](#) [p. 2.24]

[Information Panel](#) [p. 2.29]



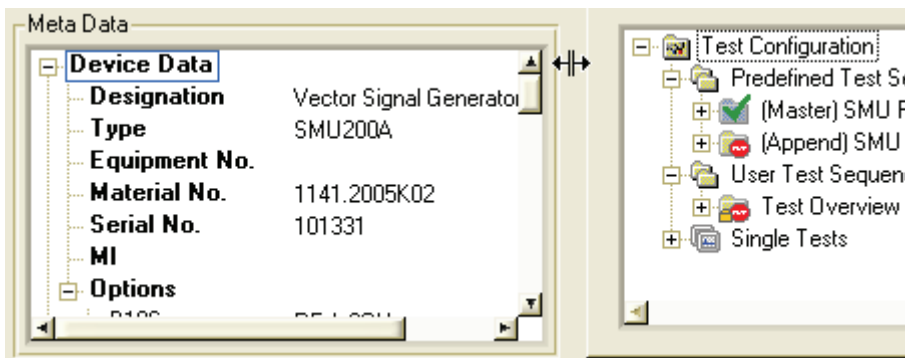
Horizontal Alignment:

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

- ▶ Change the size and place of the TM G5 Desktop as preferred by using the mouse pointer.

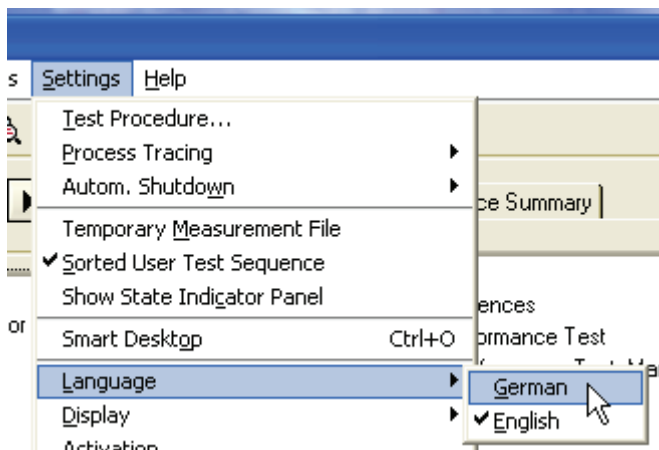


- ▶ Change the size of the desktop elements as preferred by using the mouse pointer.



Language

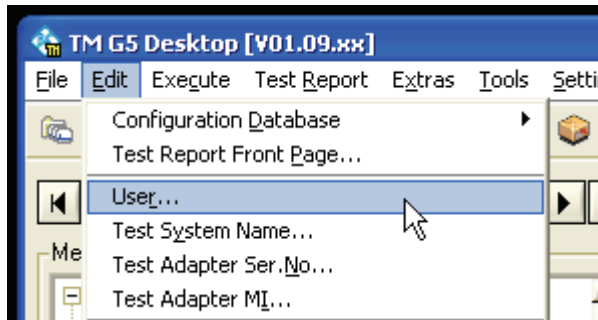
- ▶ Select the language as required.




User Name

The name of the current Test Program user is required for several application services, such as [Test Report](#) [p. 2.54] or QIS.

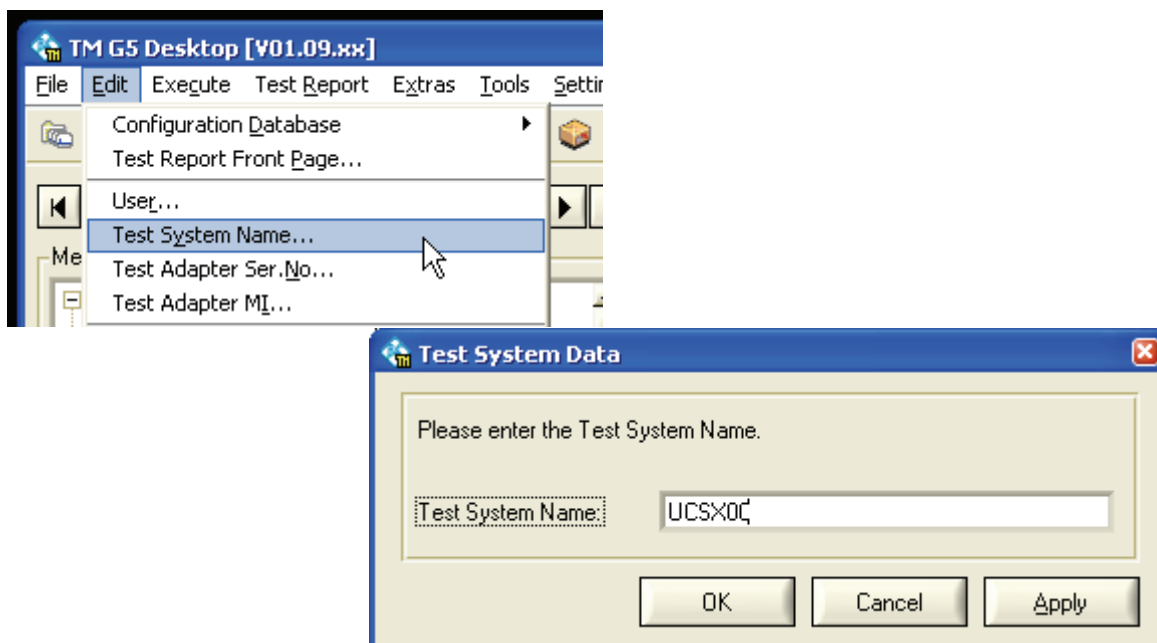
- ▶ Use the *User Data* dialog to define the user name and its period of validity. The user name will be exported to the relevant services.



 **Note:** 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.

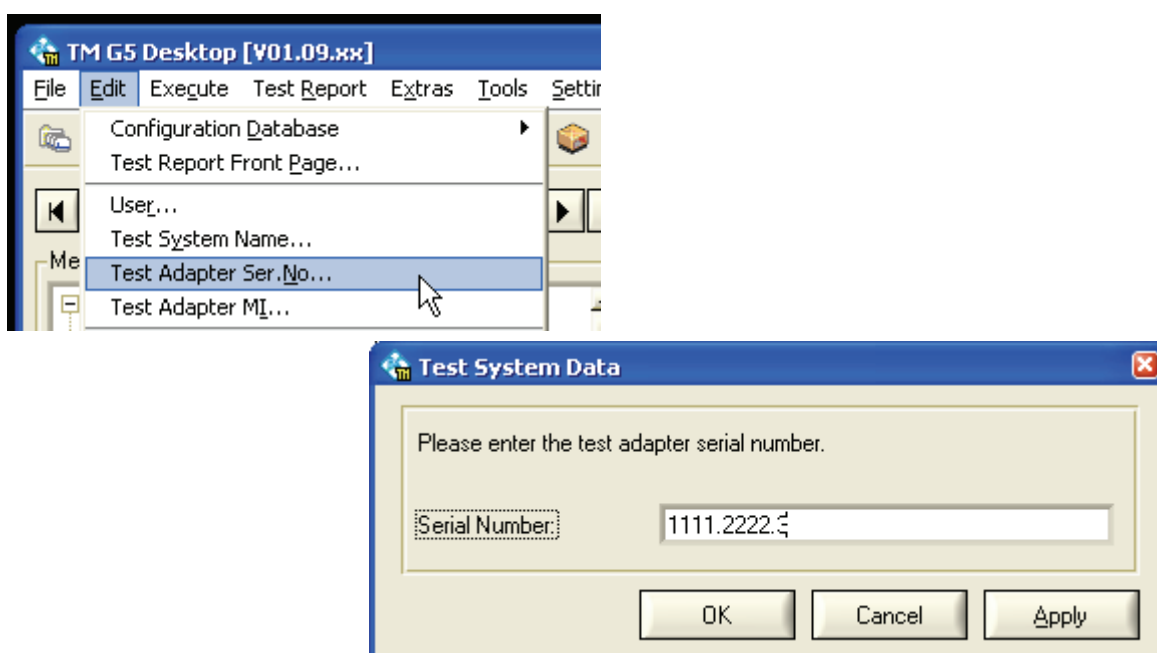
Test System Name

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



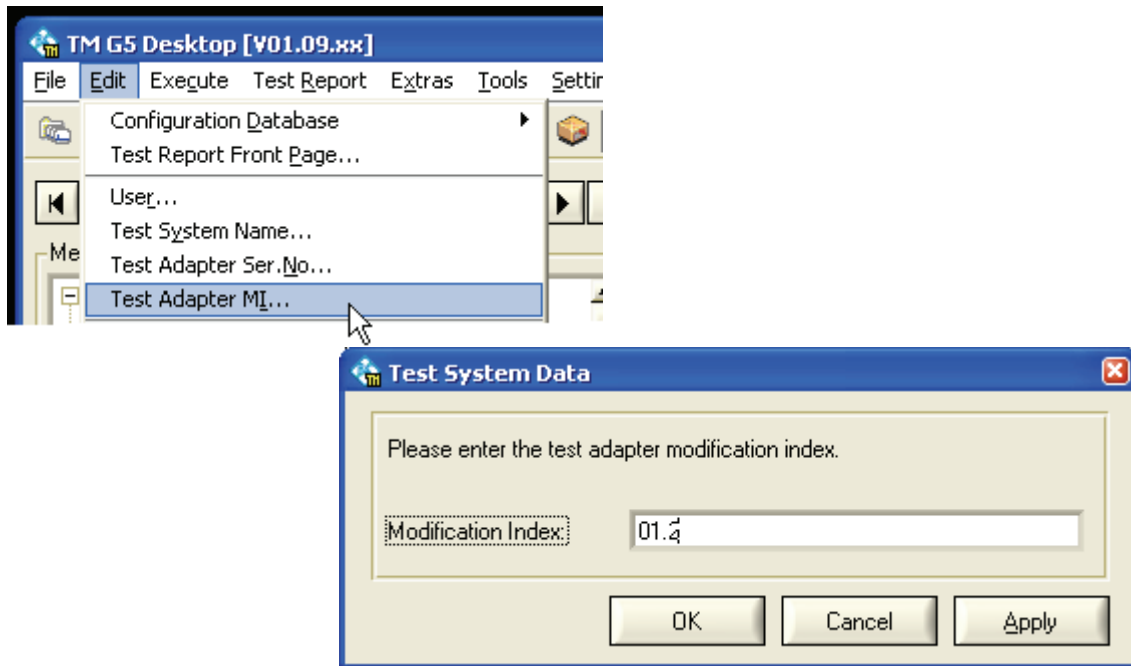
Test Adapter Serial Number

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



Test Adapter Modification Index

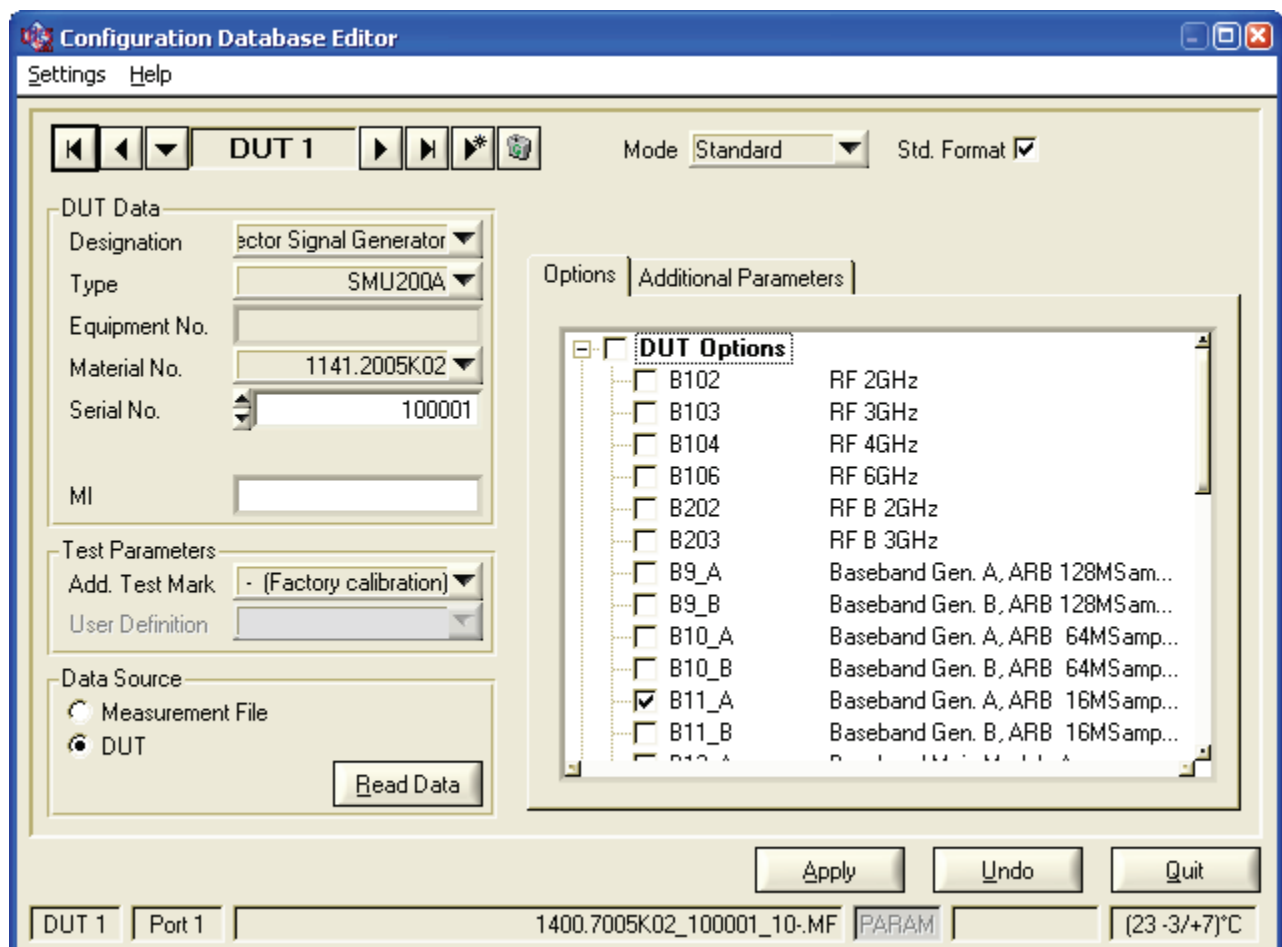
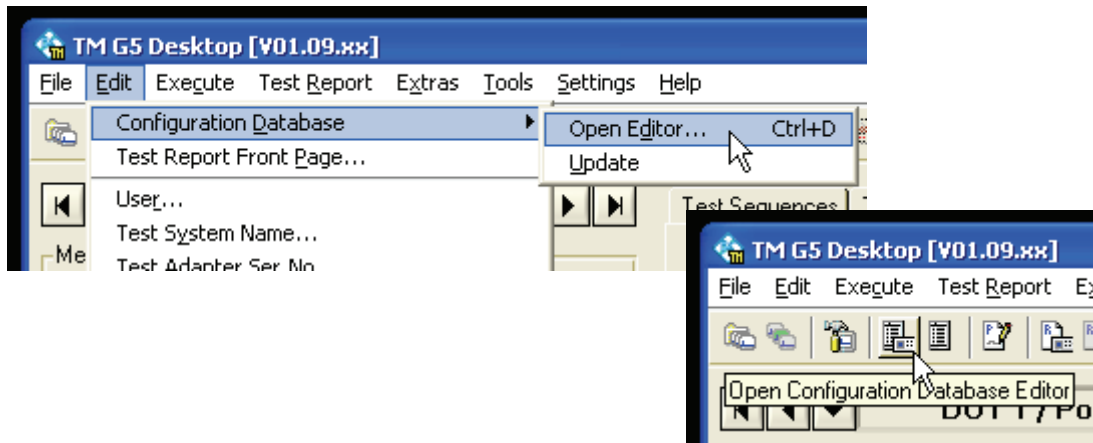
- ▶ The Test Adapter Modification Index should have been defined during the setup process. It may be changed subsequently as required (manually or automatically).




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.

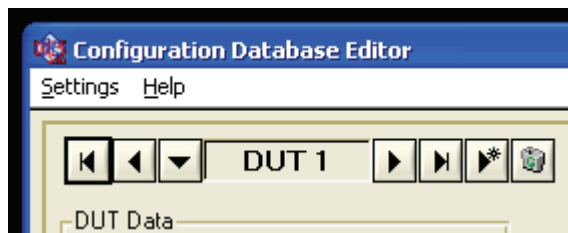


 **Note:** The TM G5 provides the ability to work with several DUT settings in parallel. This is necessary for using the UCS system together with a scanner option.

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 [Navigation Bar](#) [p. 2.22].




Registering and Deleting a device see [Multiple Device Testing Mode](#) [p. 3.109].

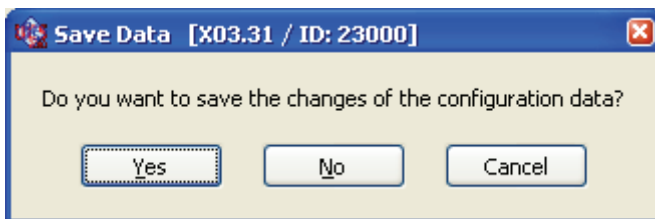
- ▶ Use the **Apply** button to apply the DUT and test configuration data.

 **Note:** 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.


 **Note:** 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.

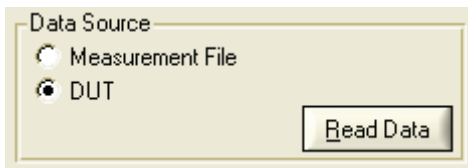


 **Note:** To avoid this confirmation popup select the **Automatic Apply** option (see [Configuration Database Editor Options](#) [p. 4.147]).

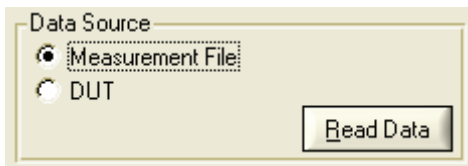
Filling in DUT specific Data

 **Note:** 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.

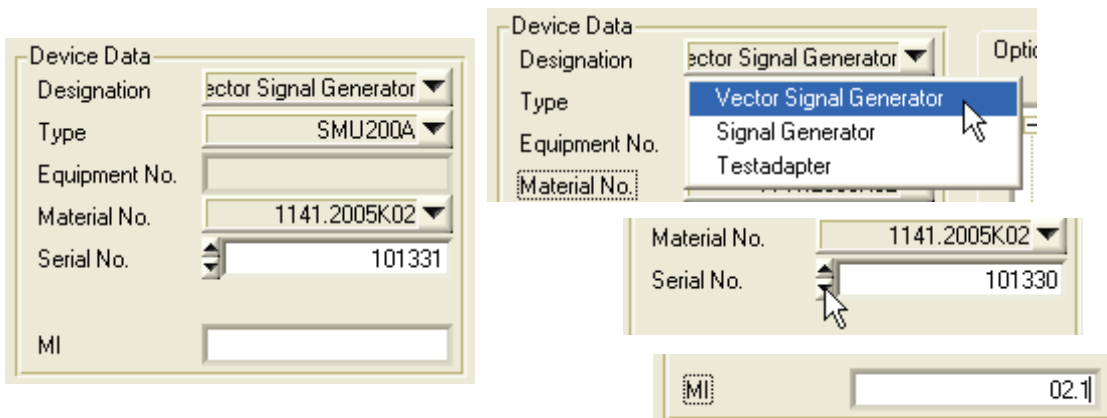
- ▶ If the DUT is connected to the test system, the DUT specific data may be read directly from the DUT and filled in automatically to the correct fields. For this purpose, select the **DUT** button and click on **Read Data**.



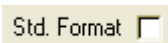
- ▶ If a measurement file exists for the DUT, the DUT specific data can be read from the measurement file and filled automatically to the correct fields. For this purpose, select the **Measurement File** button and click on **Read Data**.



- ▶ 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.



 **Note:** ▶ Use the **Standard Format** checkbox to toggle the device data format.



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

Device Data	
Designation	SIGNAL GEN. ▼
Type	SMU 200A ▼
Ident No.	1141.2005 ▼
Variant	02 ▼
Serial No.	/ 0
MI	1.37

This device data format style is called the old style.

Generally, the device data are required as shown above (see [p. 2.41]). This device data format style is called the standard style.

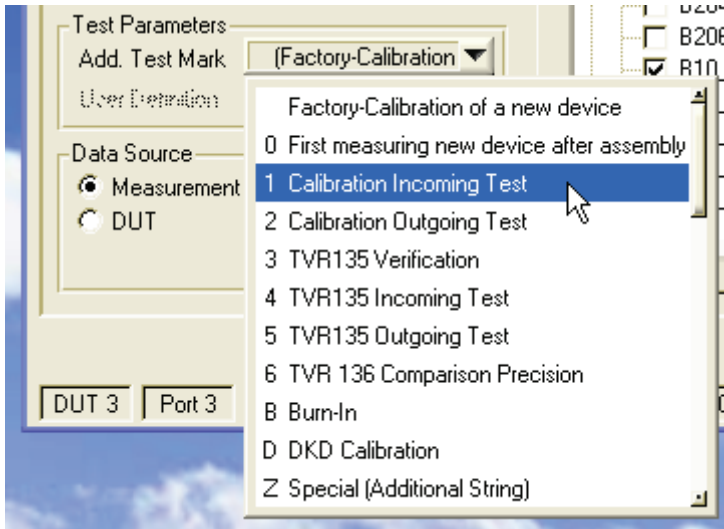
The visibility of the checkbox depends on the Test Program.


▶ 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.

Options Additional Parameters	
<div style="border: 1px solid black; padding: 5px;"> <p><input type="checkbox"/> DUT Options</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> B103 RF 3GHz <input type="checkbox"/> B106 RF 6GHz <input checked="" type="checkbox"/> B203 RF B 3GHz <input type="checkbox"/> B206 RF B 6GHz <input type="checkbox"/> B9_A Baseband Gen. A, ARB 128MSam... <input type="checkbox"/> B9_B Baseband Gen. B, ARB 128MSam... <input type="checkbox"/> B10_A Baseband Gen. A, ARB 64MSamp... <input checked="" type="checkbox"/> B10_B Baseband Gen. B, ARB 64MSamp... <input type="checkbox"/> B11_A Baseband Gen. A, ARB 16MSamp... <input type="checkbox"/> B11_B Baseband Gen. B, ARB 16MSamp... <input type="checkbox"/> B13_A Baseband Main Module A <input type="checkbox"/> B13_B Baseband Main Module B </div>	

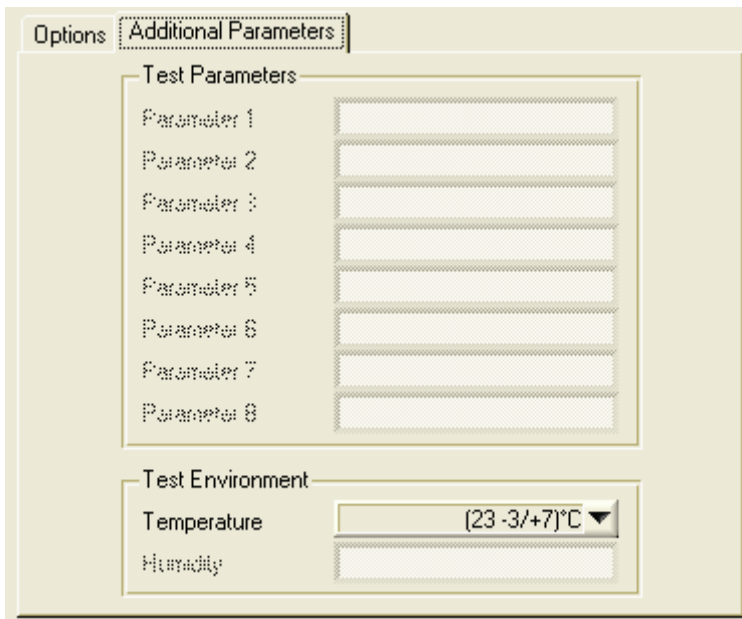
Filling in Test specific Data

- ▶ 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](#) [p. 3.127].



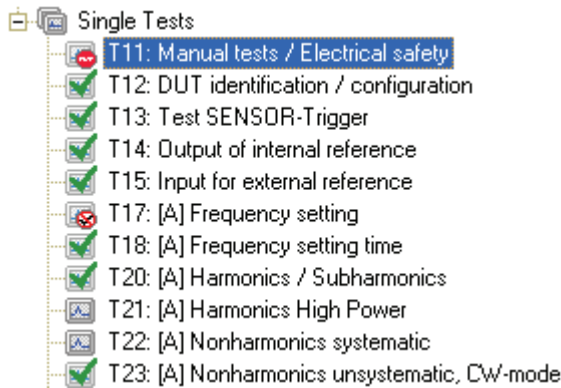
 **Note:** Using extended features see [Using the additional Test Mark](#) [p. 3.104]

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



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.



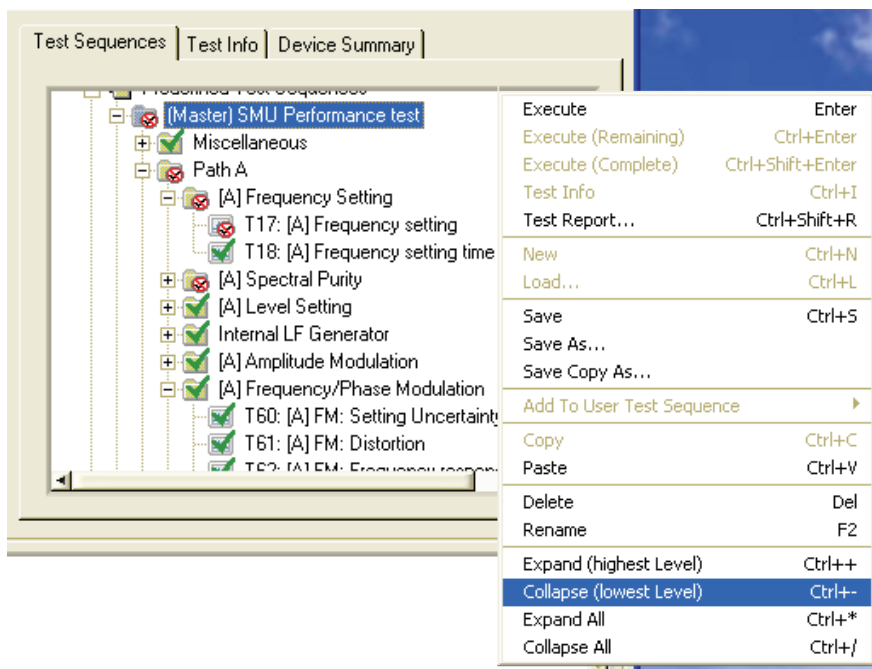
Single tests can be grouped and performed in different test sequences.

Predefined Test Sequences

The test of a DUT is done by performing a certain predefined test sequence. Normally the [Master Test Sequence](#) [p. 2.50], 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](#) [p. 2.50].

User defined Test Sequences

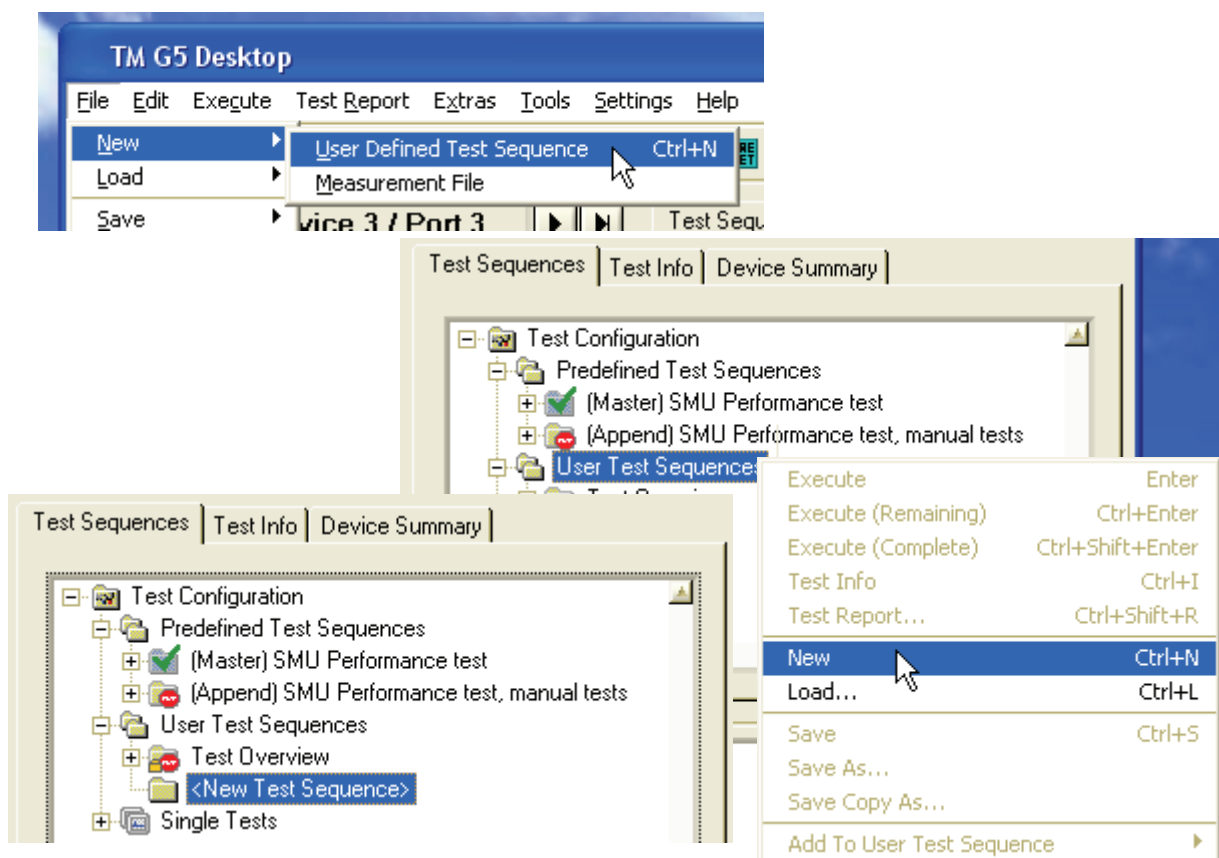
Parts of the Master Test Sequence or a test of the Single Test folder can be taken to define a special test sequence, the so-called **User Test Sequence**. This could be helpful if a customer wants only a limited part of the overall sequence tested. Creating a short goods incoming test sequence to determine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

 **Note:** The [Test Overview Test Sequence](#) [p. 2.50] will be created automatically and cannot be modified by the User. This test sequence contains all *not passed* tests of the [Master Test Sequence](#) [p. 2.50] and the [Master Test Sequence Appendix](#) [p. 2.50].

 **Note:** The visibility of the folder *Single Tests* is controlled by the Test Program.

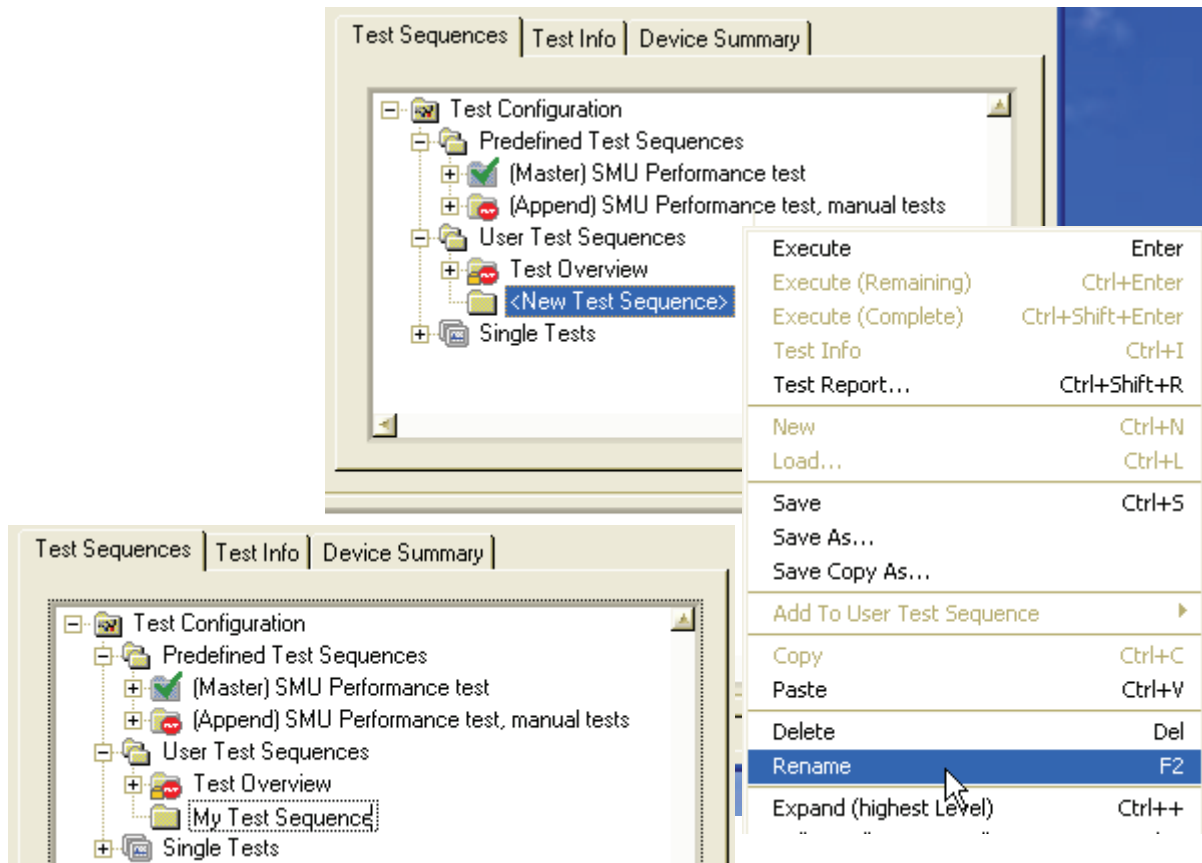
Create

- ▶ 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

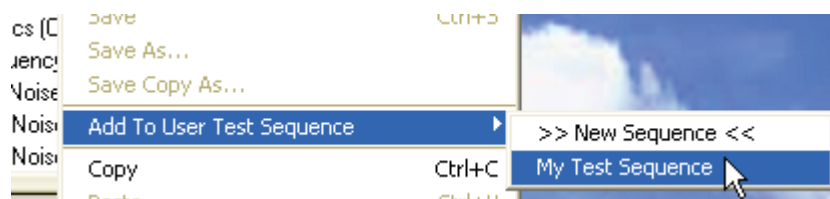
- ▶ Right click on a user defined test sequence and use the **Rename** command from the context menu to rename a user defined test sequence.






Add On

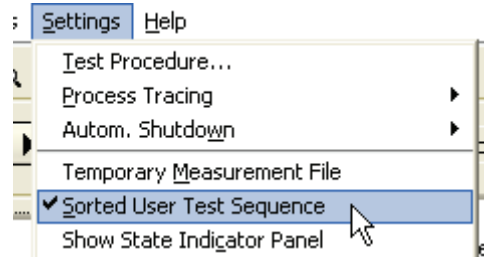
- ▶ You may add tests to a User Test Sequence in different ways. But only test sequences and tests of the folders *Predefined Test Sequence* and *Single Tests* can be added.

- 1 Use the copy (Ctrl+C) and paste (Ctrl+V) shortcuts like in Windows Explorer.
)
- 2 Use the **Copy** and **Paste** command from the context menu like in Windows Explorer.
)
- 3 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.
)



 **Note:** A multiple selection of test sequences and tests is possible.

-  **Note:** Sequences added to a user defined test sequence are resolved into its tests.
-  **Note:** 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**.

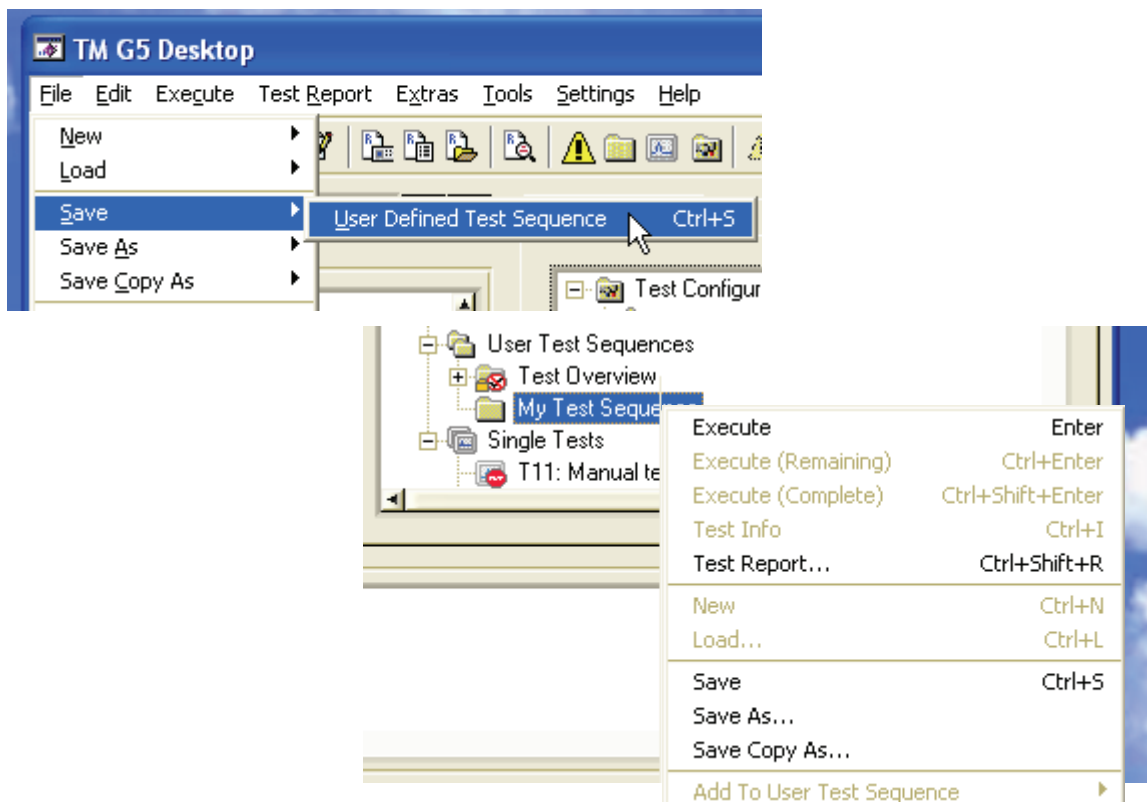


Save

- ▶ 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.

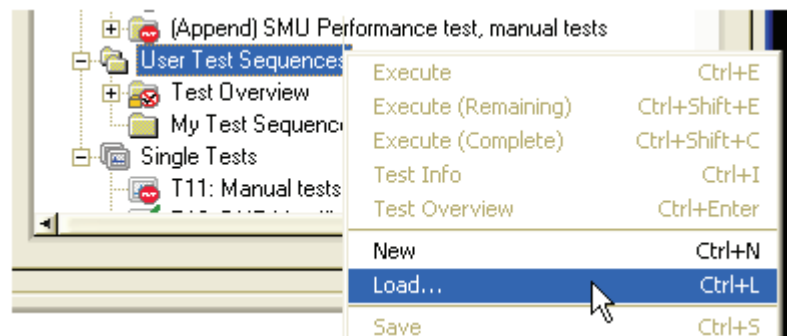
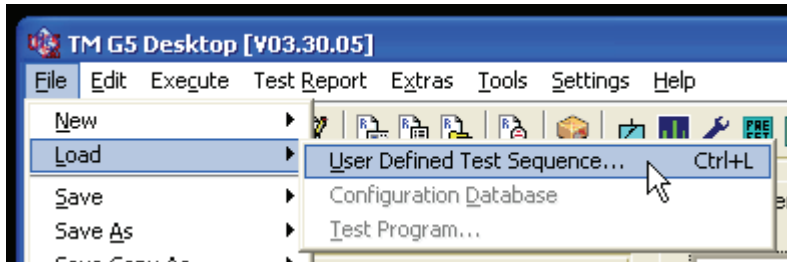
Use the **Save As** command to write a user defined test sequence to disk using a new filename which must be specified. The selected user test sequence will also be renamed within the test sequence tree.

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

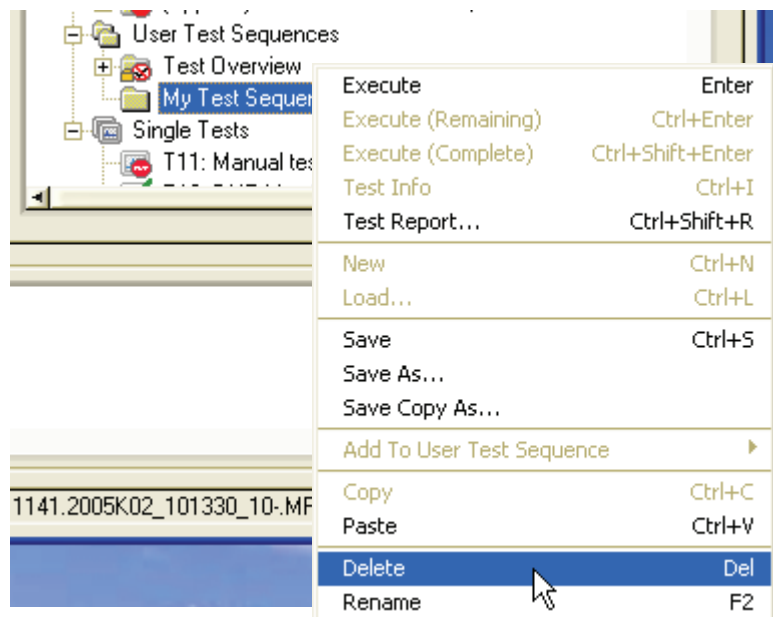
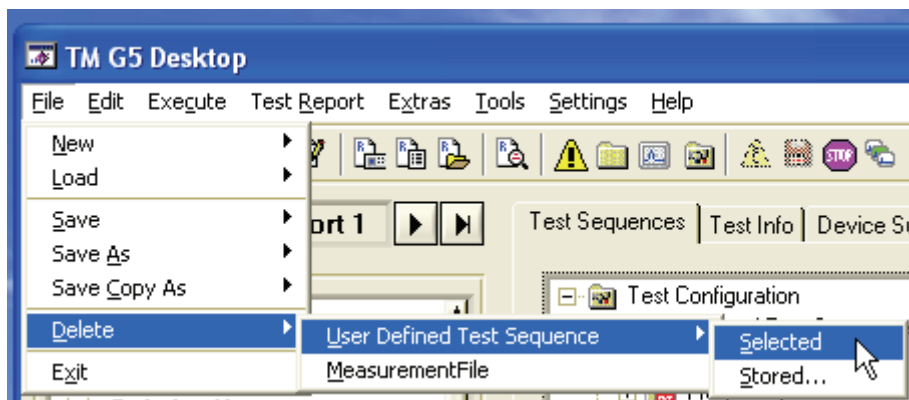
- ▶ Use the **Load** command of the menu bar to load a user defined test sequence from disk. Alternatively, right click on the folder *User Test Sequences* within the test sequence tree and use the **Load** command from the context menu.



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.



Performing a complete DUT Test

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

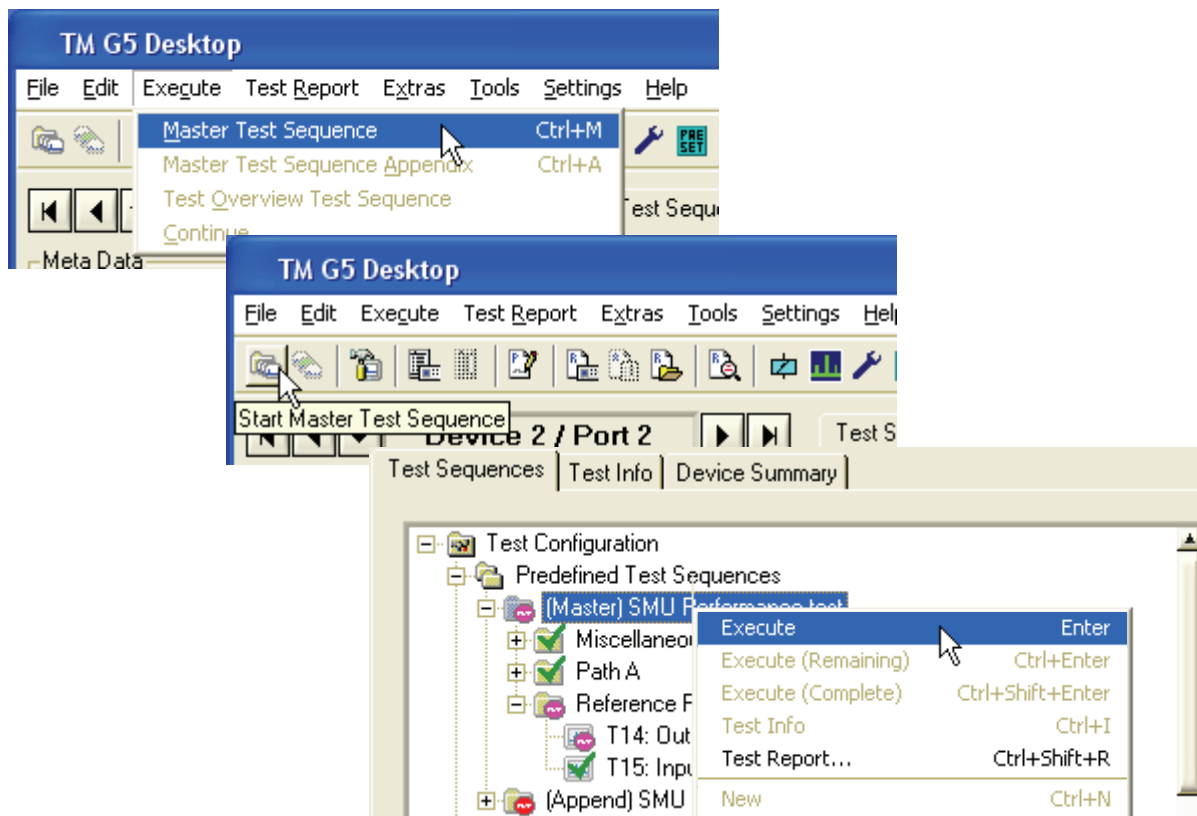
- 1) The **Master Test Sequence** which contains all tests which can be performed automatically without user intervention.
- 2) The **Master Test Sequence Appendix** which contains the additional tests that need user intervention.

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 [Viewing the Test Overview](#) [p. 2.57].

Performing the Master Test Sequence

To start the *Master Test Sequence*

- ▶ use the **Master Test Sequence** command of the menu bar
- ▶ use 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*

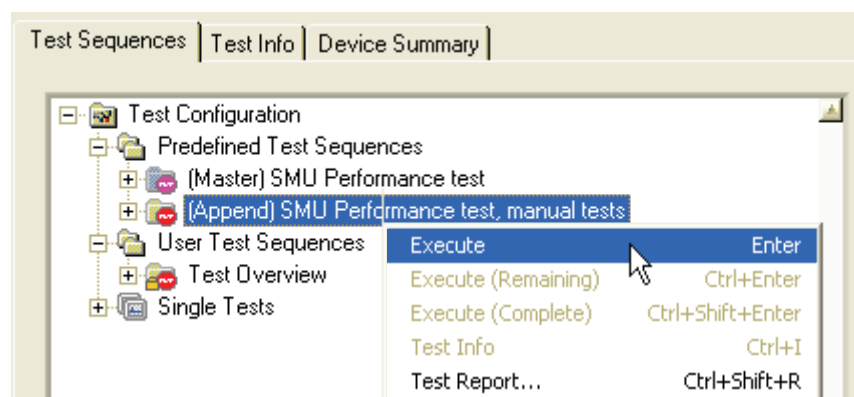
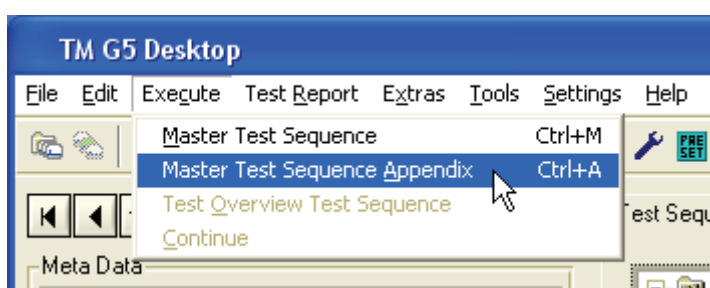


Performing the Master Test Sequence Appendix

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*

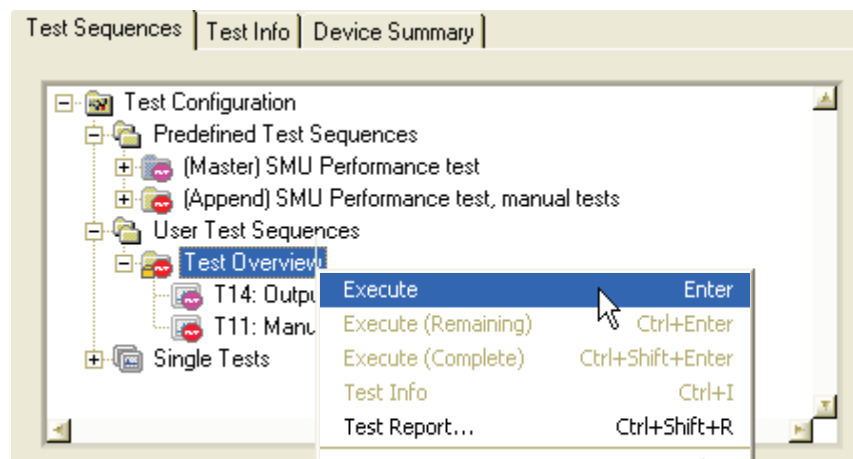
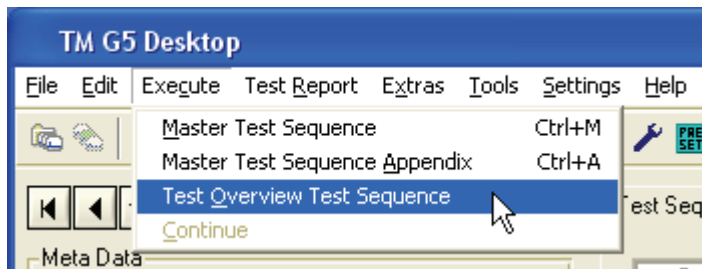


- ▶ If user intervention is necessary, a popup will appear containing a detailed description of what to do.

Performing the Test Overview Test Sequence

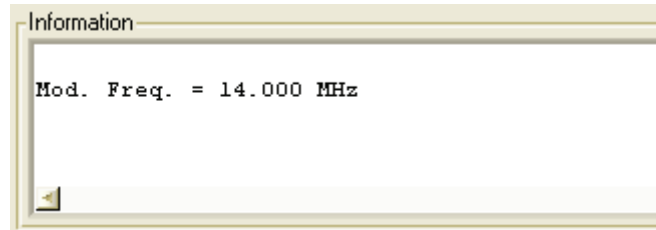
To start the *Test Overview Test Sequence*

- ▶ 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*

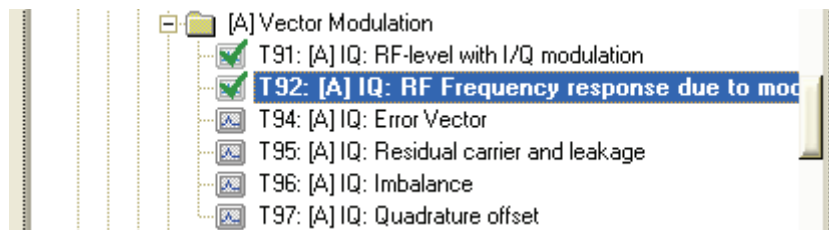


Information about the executed Test

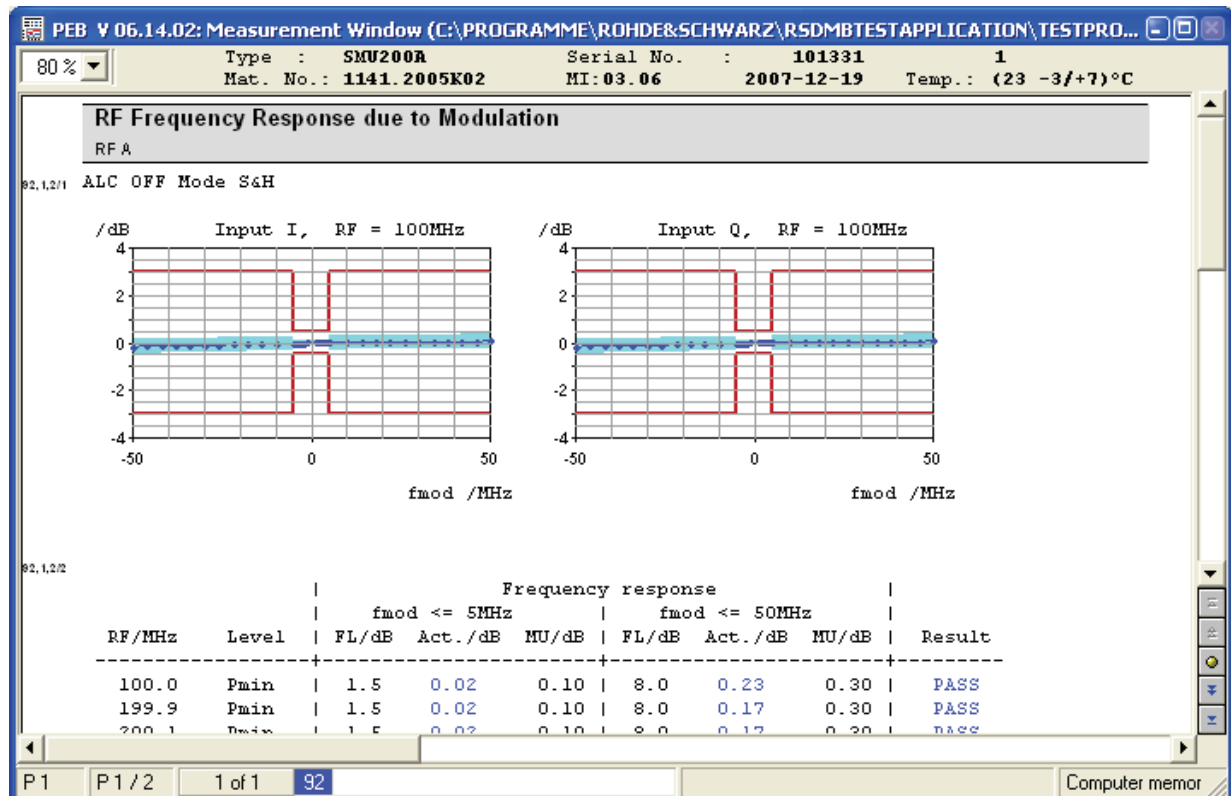
Once the test sequence has started, the individual tests will be executed sequentially. The information part of the TM G5 Desktop shows the current active test and displays some test information.



The current active test is highlighted in the [Test Sequences Tab](#) [p. 2.24].



The measurement results are simultaneously written to the Test Report Manager and displayed in the [Measurement Window](#) [p. 2.89]. When this panel is brought to the top, the test progress and the current measurement results can be seen.



Information about the Test Result State

Single icons within the [Test Sequences Tab](#) [p. 2.24], [Test Info Tab](#) [p. 2.26] and [Device Summary Tab](#) [p. 2.27] 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 [Terms and Abbreviations in Test Reports](#) [p. 2.67].

Filling in Test Report Front Page Data

Normally after a test sequence has been completed, the next step is to check the [Test Overview](#) [p. 2.57]).

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:

Frontpage Data

Test department: MENE

Tester: Stefan Koenigsberger
Andreas Mayr

Optional

Supply No:


Customer's reference No.:

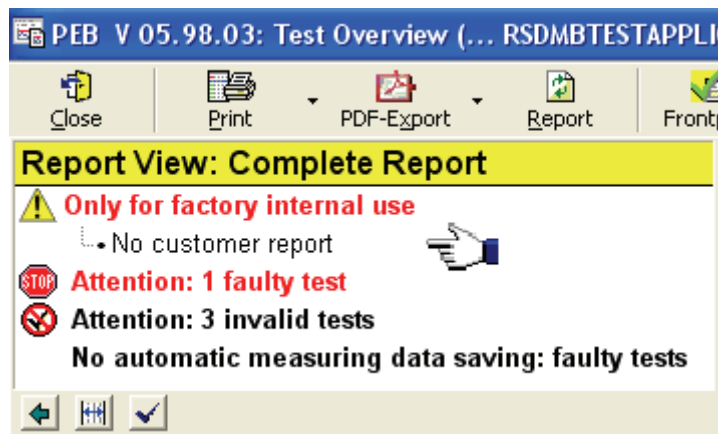
Manufacturer's reference No.:

OK Cancel

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.

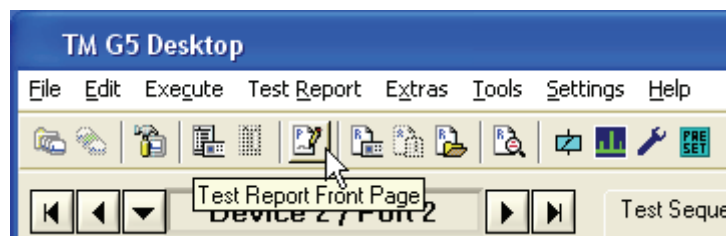
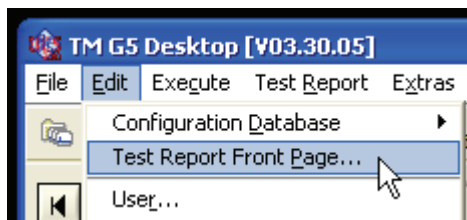
The fields “Supply No.,” “Customer’s reference No.” and “Manufacturer’s reference No.” are optional and may be left empty if not needed.

 **Note:** 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.

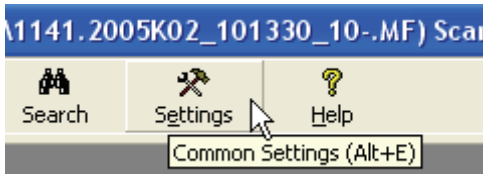


- 2 Fill in the Test Report Front Page Data as described above.

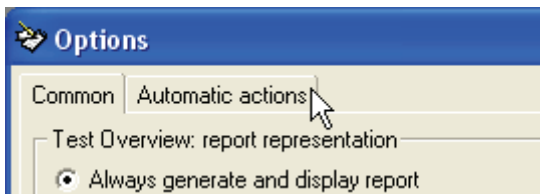
Automatic Test Report Front Page Data Query

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:

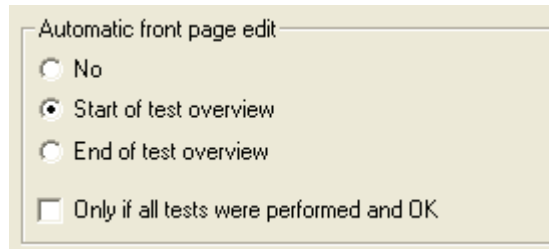
- 1 Open any Test Report (see [Handling of Test Reports](#) [p. 2.68]).
- 2 Use the **Settings** button of the Test Report toolbar to open the settings menu.



- 3 Select the tab "Automation actions".



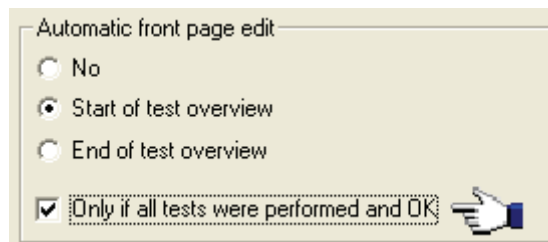
By default the setting is as follows:



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:

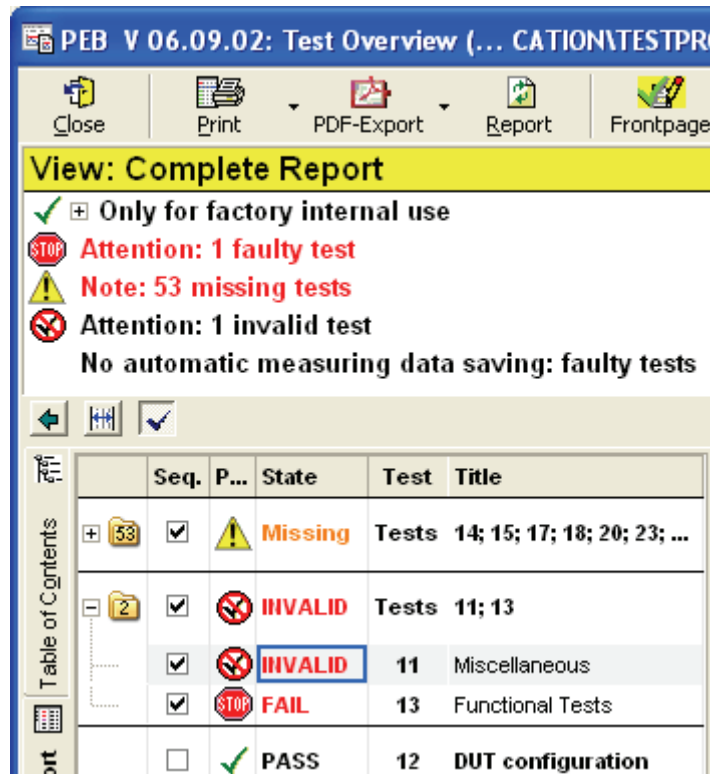


The Test Report Front Page Data dialog will now only pop up if a DUT test sequence has been completed and found as PASS.

Viewing the Test Overview

Once a test has been completed, the test result state is displayed in the Test Sequences Tab as described in [Information about the Test Result State](#) [p. 2.54].

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](#) [p. 2.50].



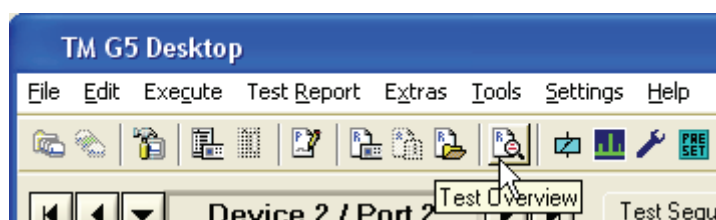
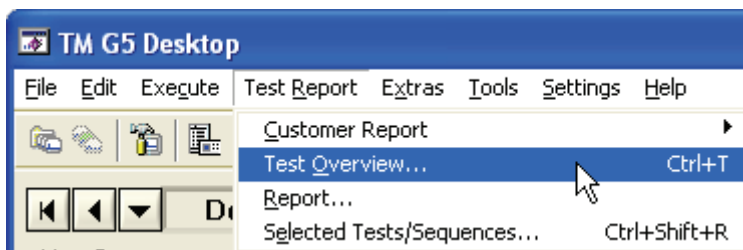
All missing, aborted, invalid, failed and UGB tests are collected together at the top of the list and give a quick overview of the tests which may have to be repeated.


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.



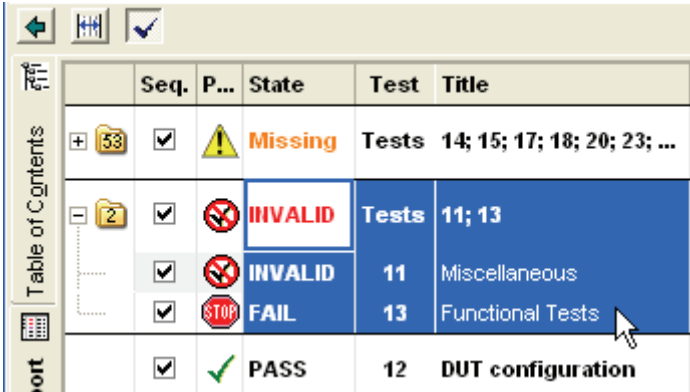
 **Note:** The Test Overview panel automatically opens after execution of the Master Test Sequence, the Master Test Sequence Appendix or the Test Overview Test Sequence.

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.

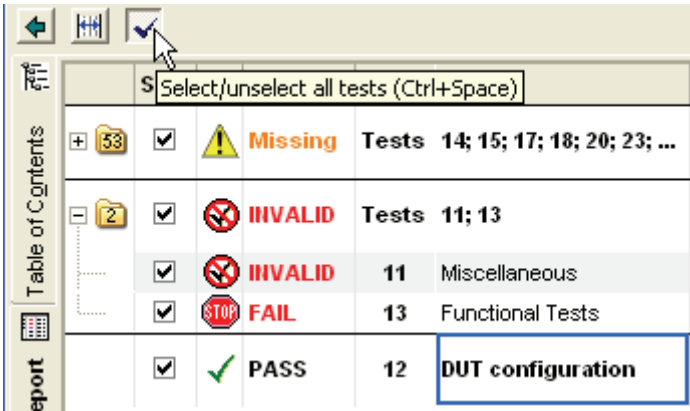
 **Note:** By default all missing, aborted, invalid, failed and UGB tests are selected.

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



	Seq.	P...	State	Test	Title
+	53	<input checked="" type="checkbox"/>	Missing	Tests 14; 15; 17; 18; 20; 23; ...	
-	2	<input checked="" type="checkbox"/>	INVALID	Tests 11; 13	
		<input checked="" type="checkbox"/>	INVALID	11	Miscellaneous
		<input checked="" type="checkbox"/>	FAIL	13	Functional Tests
		<input checked="" type="checkbox"/>	PASS	12	DUT configuration

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



	Seq.	P...	State	Test	Title
Select/unselect all tests (Ctrl+Space)					
+	53	<input checked="" type="checkbox"/>	Missing	Tests 14; 15; 17; 18; 20; 23; ...	
-	2	<input checked="" type="checkbox"/>	INVALID	Tests 11; 13	
		<input checked="" type="checkbox"/>	INVALID	11	Miscellaneous
		<input checked="" type="checkbox"/>	FAIL	13	Functional Tests
		<input checked="" type="checkbox"/>	PASS	12	DUT configuration

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

	Seq.	P...	State	Test	Title
+	53	<input checked="" type="checkbox"/>	Missing	Tests	14; 15; 17; 18; 20; 23; ...
-	2	<input checked="" type="checkbox"/>	INVALID	Tests	11; 13
		<input checked="" type="checkbox"/>	INVALID	11	Miscellaneous
		<input checked="" type="checkbox"/>	FAIL	13	Functional Tests
		<input checked="" type="checkbox"/>	PASS	12	DUT configuration

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

Test Sequences | Test Info | Device Summary

- (Master) SMU Performance test
 - (Append) SMU Performance test, manual tests
 - User Test Sequences
 - Test Overview
 - T12: DUT identification / configuration
 - T13: Test SENSOR-Trigger
 - T17: [A] Frequency setting
 - T25: [A] Wideband noise, CW-mode
 - T28: [A] Residual FM
 - T11: Manual tests / Electrical safety
 - Single Tests

To run the selected tests, execute the Test Overview Sequence. For further information see [Performing the Test Overview Test Sequence](#) [p. 2.52].

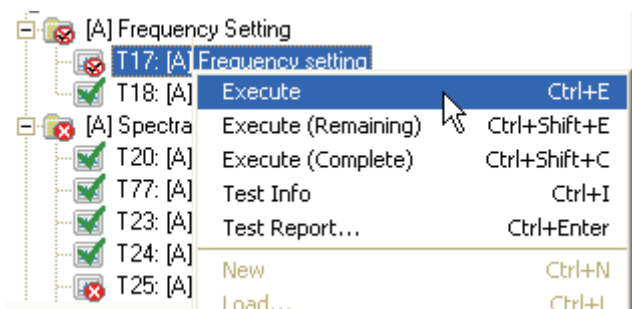
Performing a Single Test

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

Using the TM 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



Using the Test Overview

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

	Seq.	Prior...	State	Test	Title
+	53	⚠	Missing	Tests	14; 15; 17; 18; 20; ...
-	2	⊘	INVALID	Tests	11; 13
		⊘	INVALID	11	Miscellaneous
		⊘	FAIL	13	Functional Tests
		✓	PASS	12	DUT configuration

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




Note: This feature is only available if selected in the Test Report Option dialog. For further information see [Test Report Options](#) [p. 4.139].

Interrupting and Aborting a Test Sequence

For interrupting and aborting a running test sequence the Interrupt Panel is used (see [Interrupt Panel](#) [p. 2.31]).

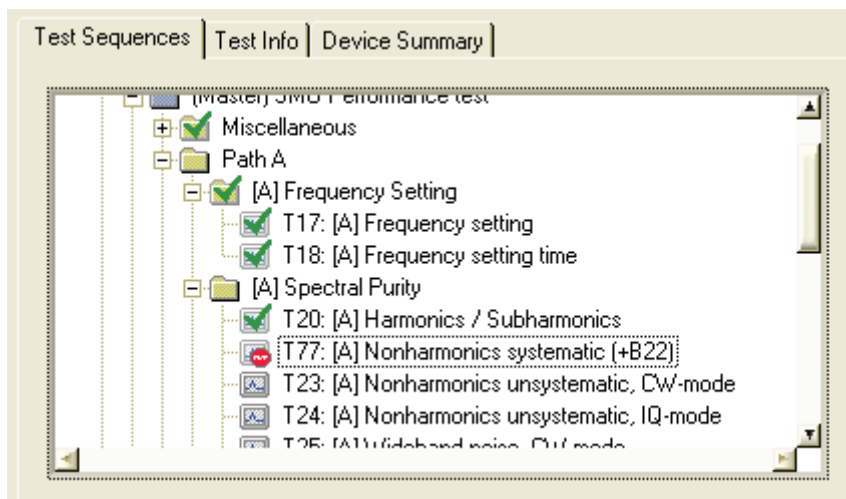


- ▶ Use one of the termination buttons which are available during a running test sequence.

-  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

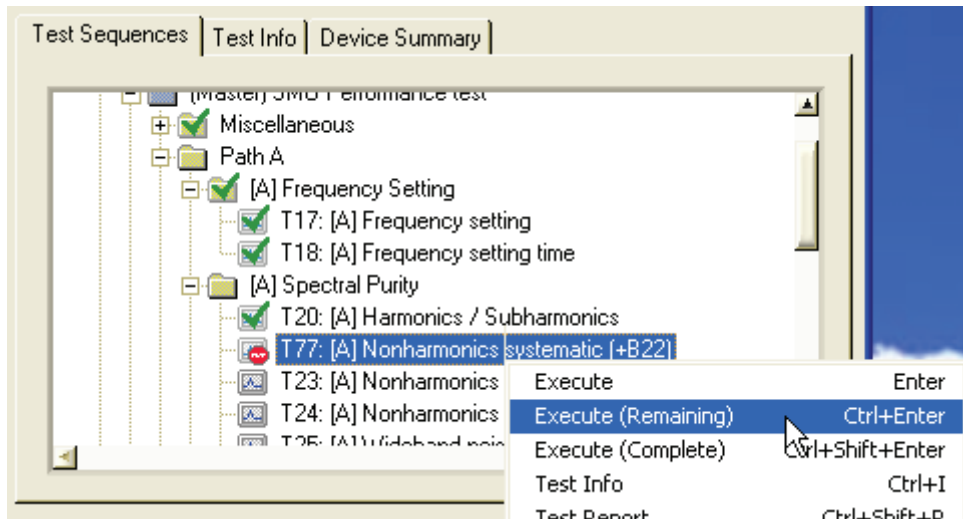
Continuing a previously aborted Test Sequence

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.




Continuing a Test Sequence using the TM 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](#) [p. 3.110], starting with the selected test or test sequence.



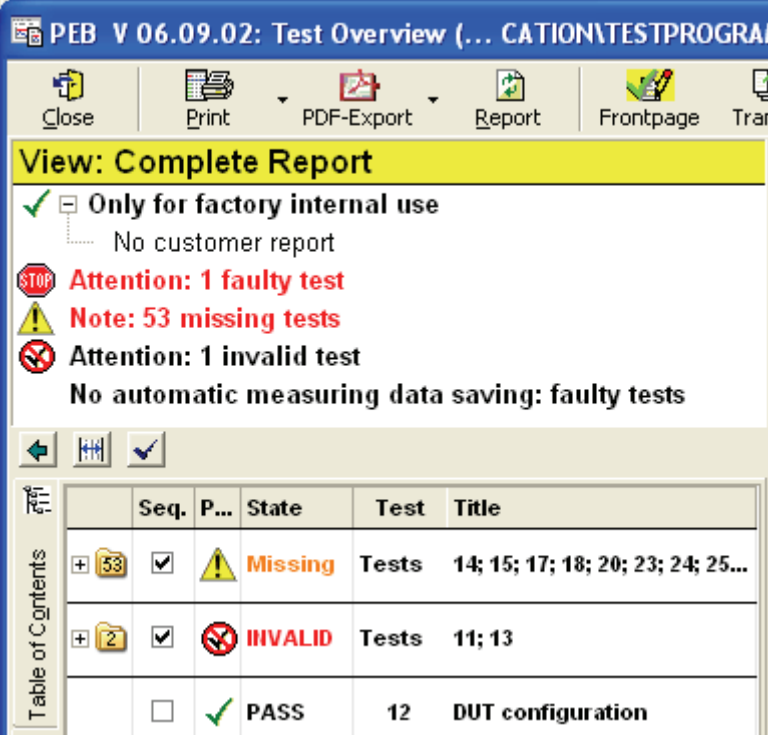
Note: The **Execute (Complete)** command also continues a Root Test Sequence starting with the selected test or test sequence. However, if the Root Test Sequence end is reached the Root Test Sequence restarts. All tests and test sequences are executed until the previously selected test or test sequence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

Continuing a Test Sequence using the Test Overview


 **Note:** This procedure is only for continuing the Master Test Sequence (see [Performing a complete DUT Test](#) [p. 2.50])

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 [Viewing the Test Overview](#) [p. 2.57]). The missing tests are sorted to the top of the list. All missing tests are selected by default.



	Seq.	P...	State	Test	Title
+	33	<input checked="" type="checkbox"/>	Missing	Tests	14; 15; 17; 18; 20; 23; 24; 25...
+	2	<input checked="" type="checkbox"/>	INVALID	Tests	11; 13
		<input type="checkbox"/>	PASS	12	DUT configuration

 **Note:** 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 [Performing the Test Overview Test Sequence](#) [p. 2.52] and [Repeating Tests by using the Test Overview](#) [p. 2.59]).

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:

- ❶ Open the *Configuration Database Editor* (see [Setting up DUT and Test Configuration](#) [p. 2.39])
- ❷ Read the device data from the related measurement file (see [Filling in DUT Specific Data](#) [p. 2.41])
- ❸ Check all of the device data and close the input dialog

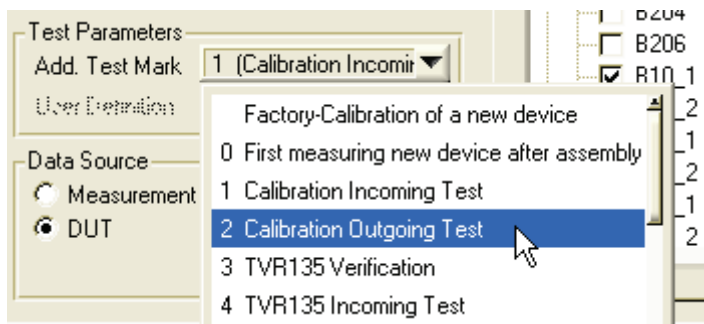
In order to continue the a test sequence proceed as described in [Continuing a Test Sequence using the TM G5 Desktop](#) [p. 2.63] and [Continuing a Test Sequence using the Test Overview](#) [p. 2.64].

Performing an Outgoing Test

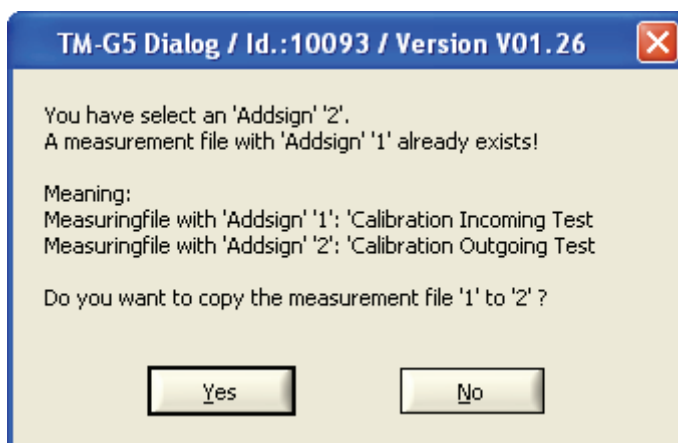
If an Incoming Test has been 100% successful, the incoming measurement results may be used within the Outgoing Test Report also.

In order to perform an outgoing test proceed as follows:

- 1 Open the *Configuration Database Editor* (see [Setting up DUT and Test Configuration](#) [p. 2.39]).
- 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.



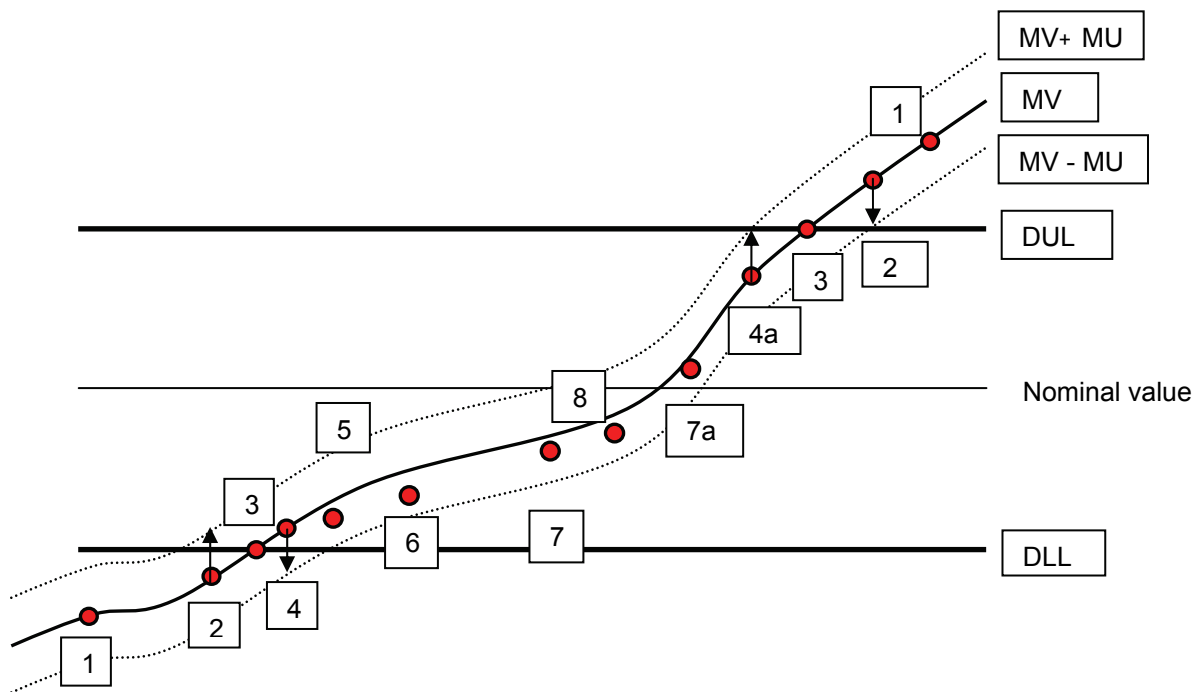
A new measurement Outgoing Test Report file is now created and stored and is available for printing.

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**

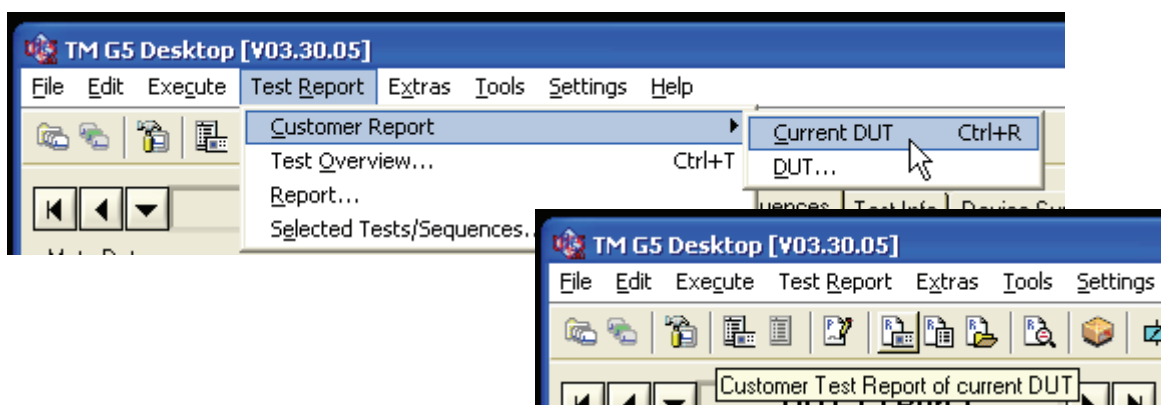
Cases 5 to 8: Measured value inside DLL / DUL, UGB inside DLL / DUL → Test result is o.k., not marked

Handling of Test Reports

Customer Test Report of current DUT

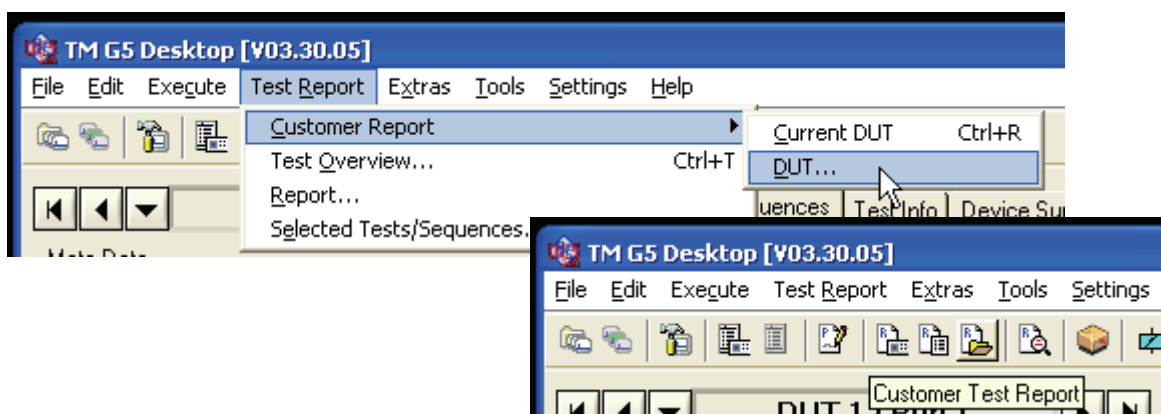
Once a test sequence or at least a single test has been executed, a Customer Test Report can be viewed.

- ▶ 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.



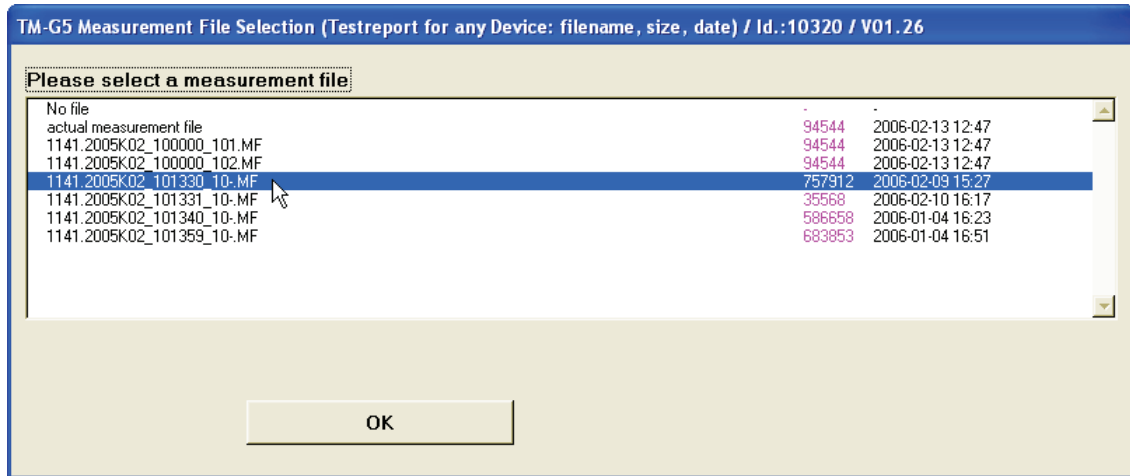
Customer Test Report of specific Device

- 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.

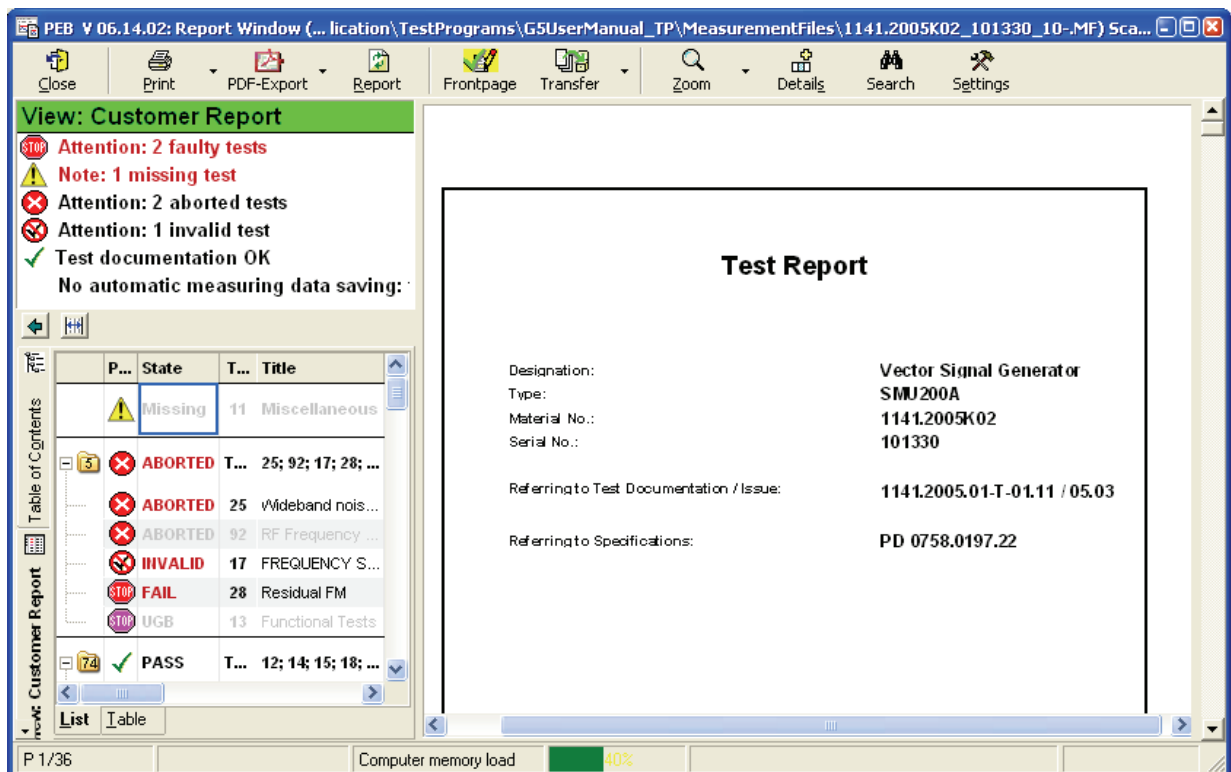


A subsequent selection window will be opened, showing all available test reports in the folder for the current device type.

- 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.



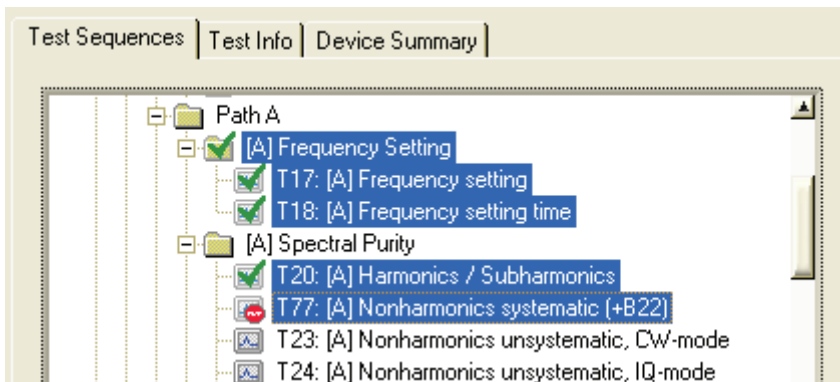
Test Report of selected Tests

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.

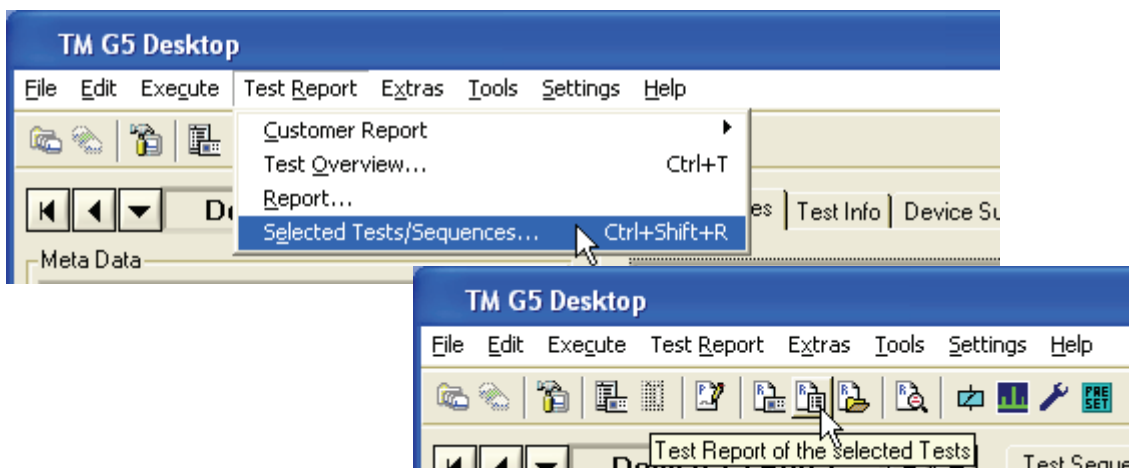
To open the individual test report proceed as follows:

- 1 Select the test sequences and tests to be displayed within the Test Sequence tab.



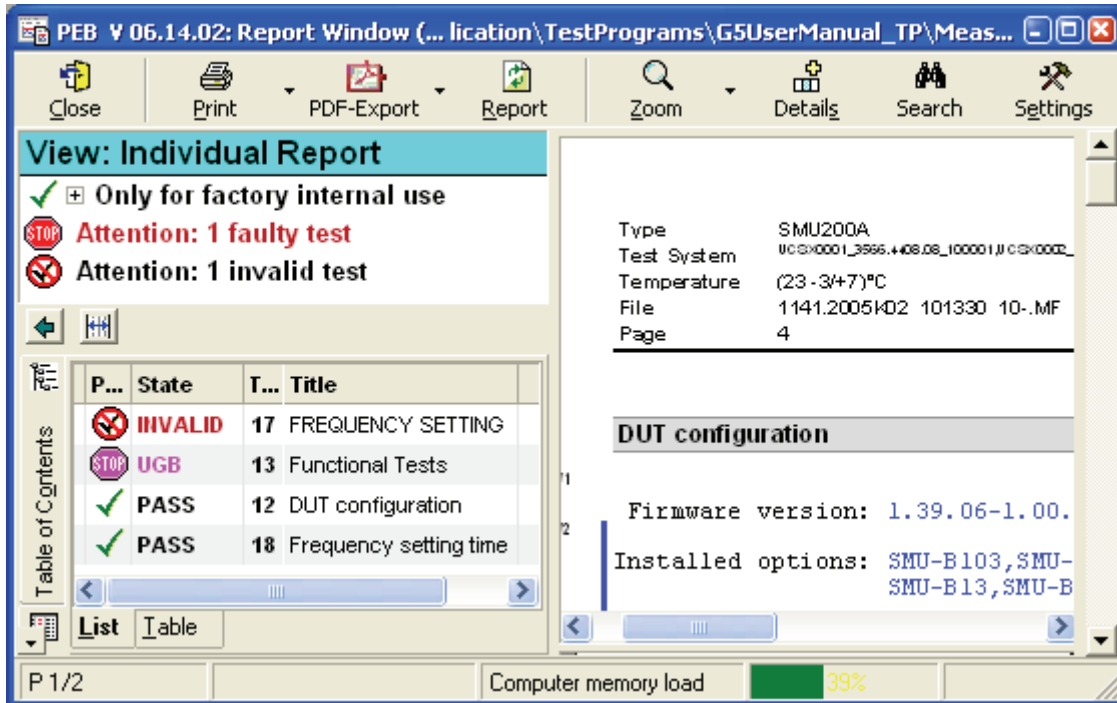
Note : If using the mouse, hold the CTRL-Key pressed to select several single tests and hold the SHIFT-Key pressed to select a range of tests.

- 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.

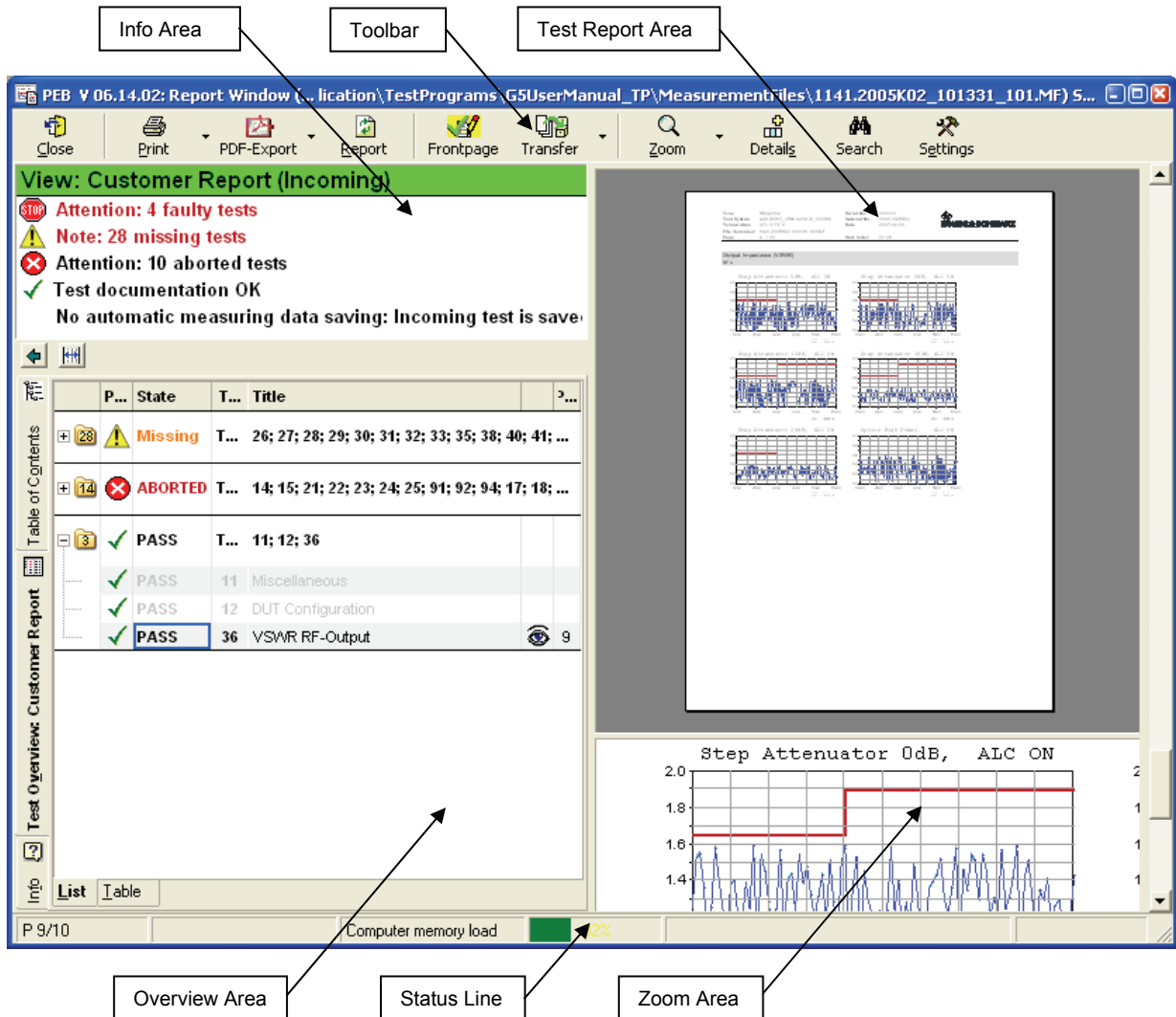


Note: The menu bar item and the toolbar button remain dimmed until at least one test has been selected.

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



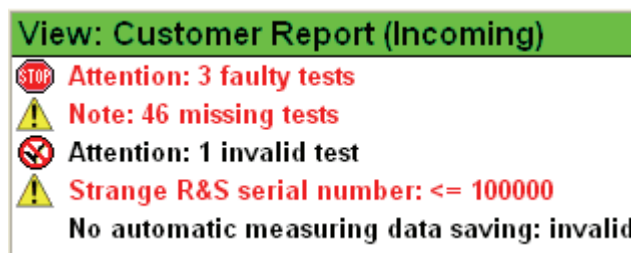
Test Report Window



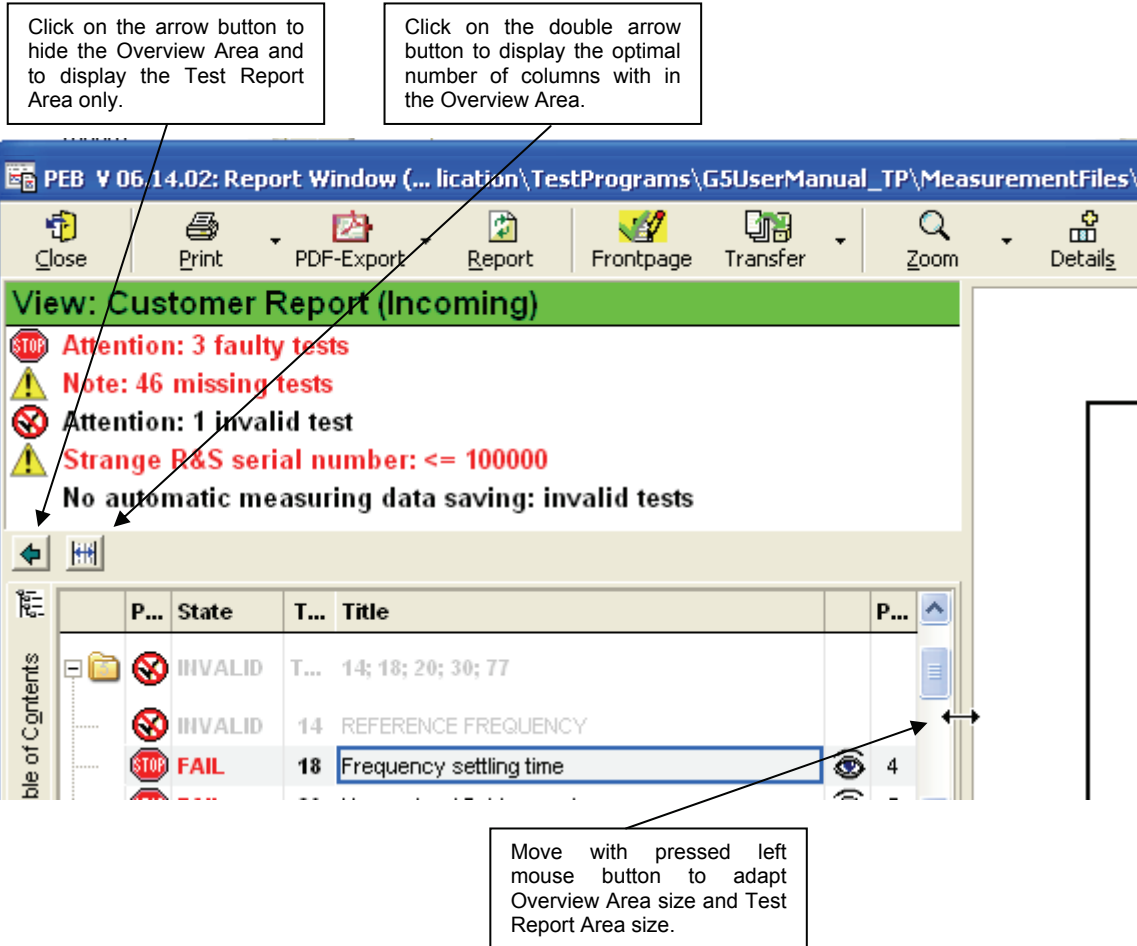
Note: When the report window is active, the TM G5 Desktop can still be operated. But tests can only be executed after the report window has been closed with the **Close** button.

Info Area

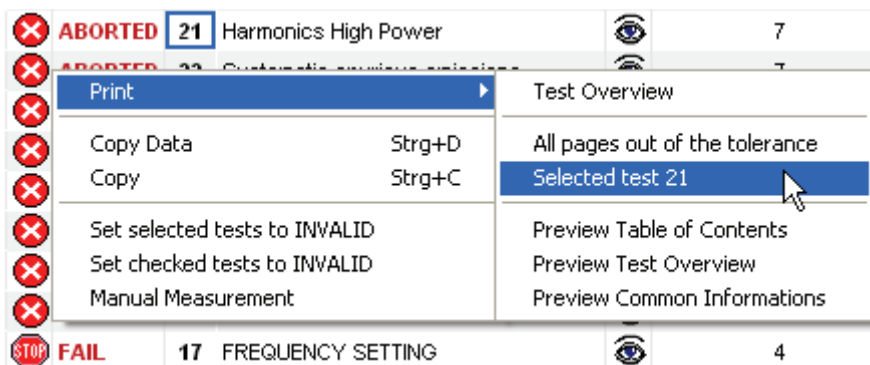
The Info Area show a summary of the test report overall state, e.g. warnings will be displayed if tests are aborted, failed, missing, etc.



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 [Printing the Test Report](#) [p. 2.80]. 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.










Test Overview Tab

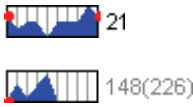
Using the buttons on the left border changes the contents of the Overview Area. By default the Overview Area shows the Test Overview.

- ▶ Use the **Test Overview** button to display the compact test information of the corresponding device.


P...	State	Test	Title	Page
✓	PASS	15	Input for external reference (REF IN)	
✓	PASS	17	FREQUENCY SETTING	5
✓	PASS	18	Frequency settling time	5
STOP	UGB	20	Harmonics / Subharmonics	6
STOP	FAIL	21	Harmonics High Power	7
STOP	Trim2u	22	Systematic spurious emissions	8
STOP	Trim2	23	Non-systematic nonharmonics CW-mode	8
INVALID	INVALID	24	Non-systematic nonharmonics IQ-mode	8
ABORTED	ABORTED	25	Wideband noise CW-mode	9
Missing	Missing	26	Wideband noise IQ-mode	

Note: Depending on the [Test Report Options and Settings](#) [p. 4.139] 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 shown and a minus sign appears.
 - ▶ A left click on the minus sign collapses the folder.
- Seq.** All checked tests are contained by the [Test Overview Test Sequence](#) [p. 2.52].
- Priority:**
-  Test has been performed with result PASS
 -  Test has been performed with result FAIL
 -  Test is missing
- Note: The test is normally part of the test sequence but has not been performed yet.
- Note: If an the test report of an incoming test is displayed this sign indicates an UGB status.
-  Test has been aborted
 -  Test has been performed with result UGB, 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

 **Note:** 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 [Extended Test Overview](#) [p. 2.87]) 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

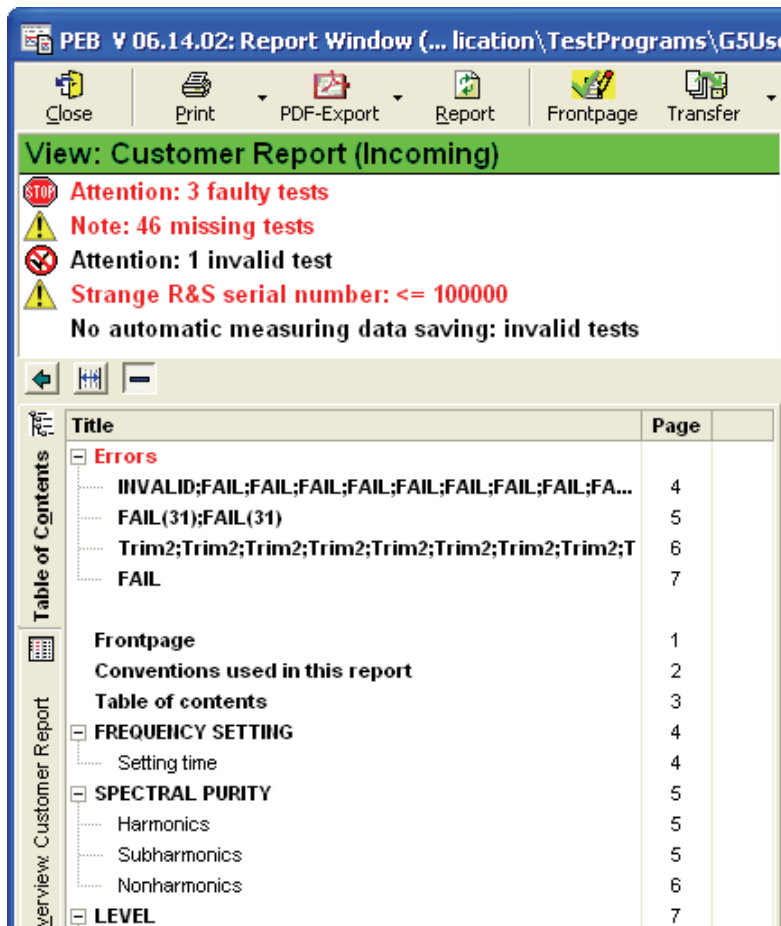
UGB2: Number of UGB2 test points of the test

UGB1: 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

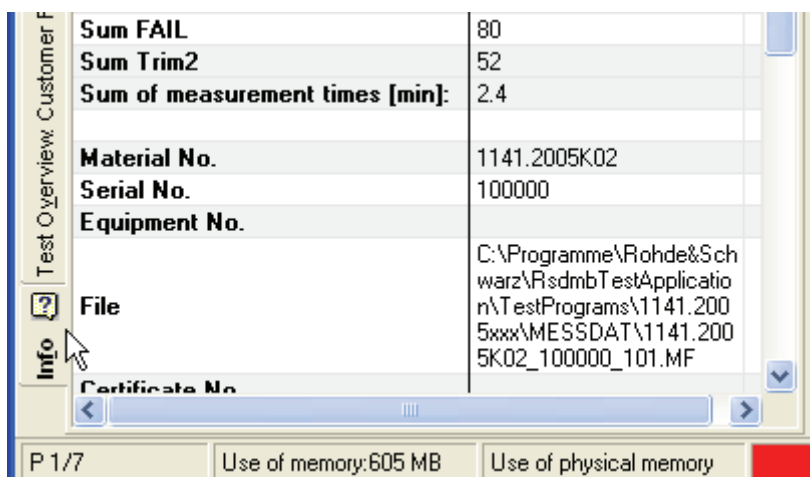
Table of Contents Tab

- ▶ Use the **Table of Contents** button on the left border of the Overview Area to display the test report table of contents.



Test Report Meta Data Tab

- ▶ Use the **Info** button on the left border of the Overview Area to display the test report meta data.



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:

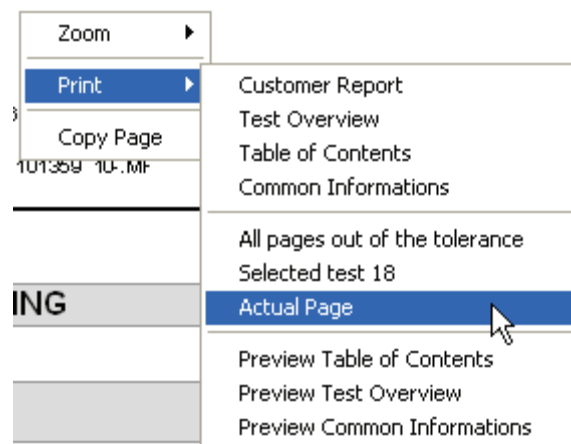
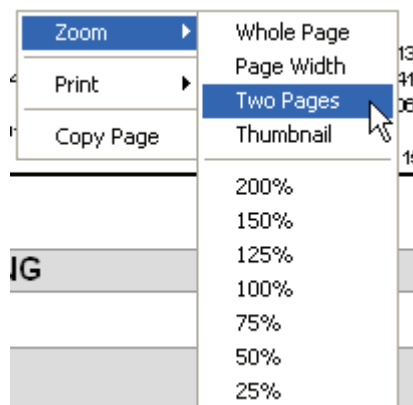
- ▶ Use the standard scroll bar on the right hand side of the Test Report Area
- ▶ If present, use the wheel of your mouse after clicking once into the Test Report Area
- ▶ A left click on a line in [Test Overview Tab](#) [p. 2.74] navigates directly to the corresponding test report page

	FAIL	21	Harmonics High Power		7
	UGB	20	Harmonics / Subharmonics		6
	Trim2u	22	Systematic spurious emissions		8
	Trim2	23	Non-systematic nonharmonics CWmode		8

- ▶ A left click on a line in [Table of Contents](#) [p. 2.77] navigates directly to the corresponding test report page

SPECTRAL PURITY	6	
Harmonics	6	
Subharmonics	6	
Harmonics High Power	7	
Nonharmonics	8	
Wideband noise	9	

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 [Zooming the Test Report Area](#) [p. 2.86] and [Printing a Test Report](#) [p. 2.80]. Additionally, the current Test Report page can be copied to the clipboard using the context menu.



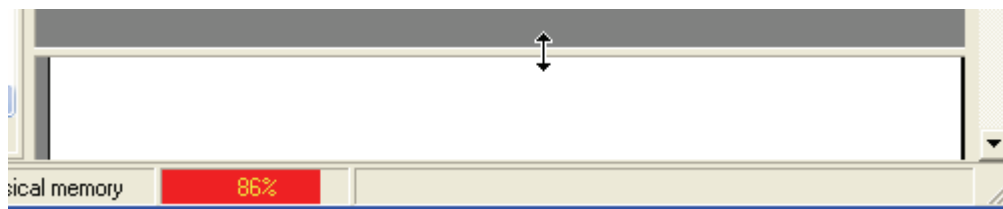
Zoom Area

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:

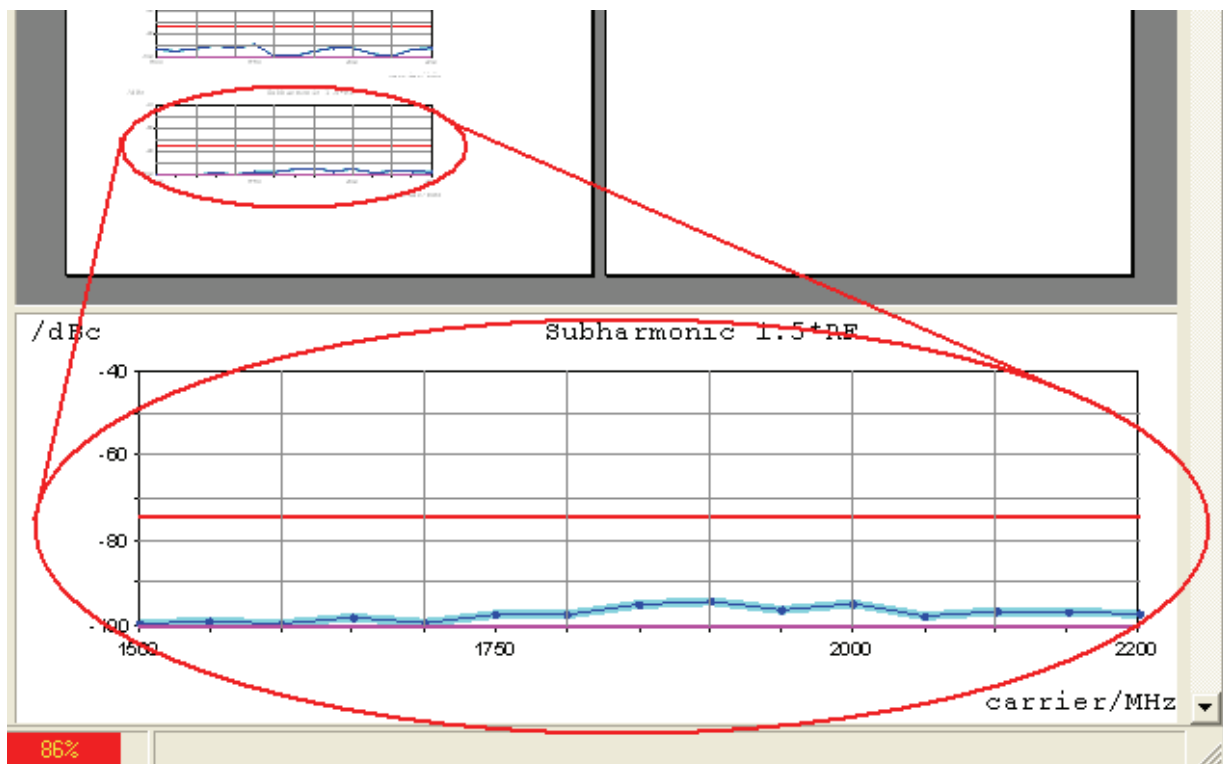
- 1 Move the mouse cursor to the position between the report area and the status bar until it changes to a double arrow



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



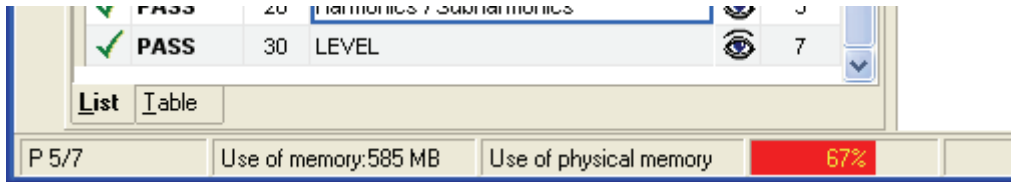
When the mouse cursor is moved through the Test Report area, the area around the mouse cursor will be enlarged in the magnifier area.



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

Status Line

The Status Line displays the current Test Report page shown in the [Test Report Area](#) [p. 2.78] and the current memory and physical memory usage of the operating system.



Note: 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.

Toolbar

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



Close the Test Report

- ▶ Use the **Close** button to close Test Report window.

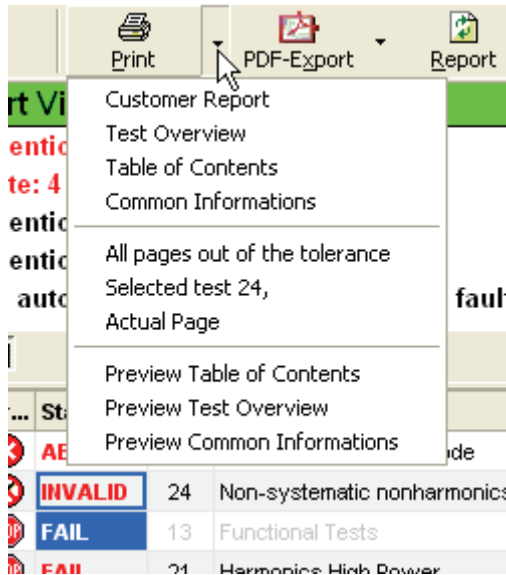


Printing the Test Report

- ▶ Use the **Print** button to print the entire Test Report.



- ▶ Use the **Print** drop down button to print only parts of the Test Report and to preview the print.

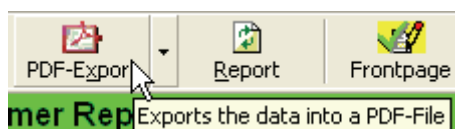


Following print features are available:

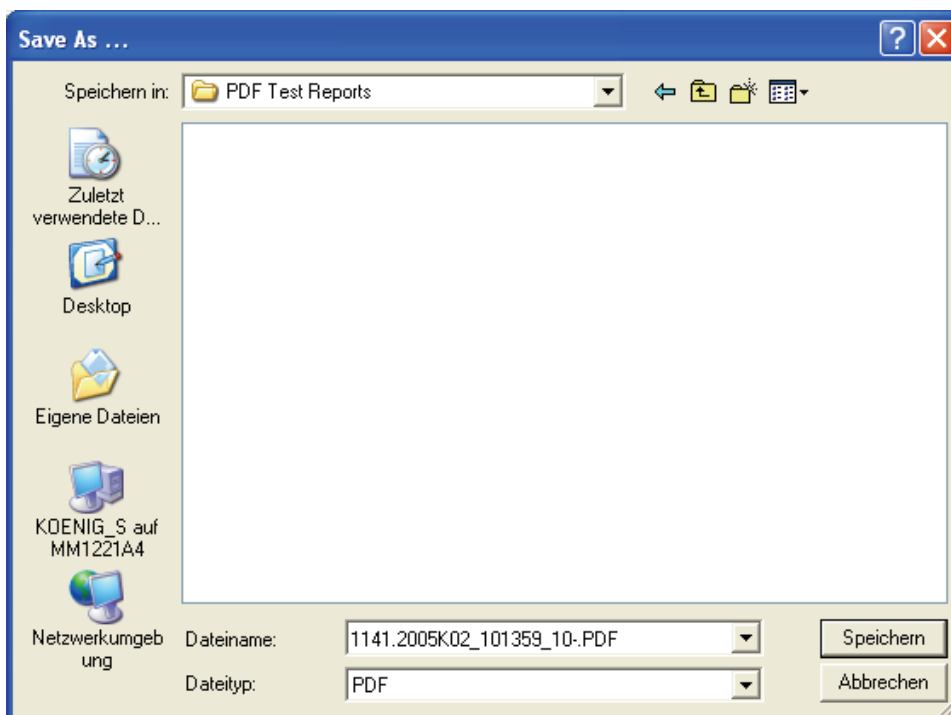
- Print the entire Test Report (Customer Test Report)
- Print the contents of the [Test Overview Tab](#) [p. 2.74]
- Print the contents the [Table of Contents Tab](#) [p. 2.77]
- Print the page with [Common Information](#) [p. 2.77]
- Print all pages containing tests out of tolerance
- Print the tests marked in the [Test Overview Tab](#) [p. 2.74]
- Print the current Test Report page
- Preview the contents of the [Table of Contents Tab](#) [p. 2.77]
- Preview the contents of the [Test Overview Tab](#) [p. 2.74]
- Preview the page with [Common Information](#) [p. 2.77]

Creating a PDF Output

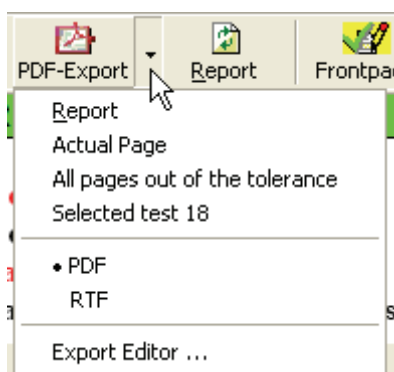
- ▶ Use the **PDF-Export** button to create a PDF file of the entire Test Report.



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.



- ▶ Use the **PDF-Export** drop down button to export only parts of the Test Report into a PDF file.



Following export features are available:

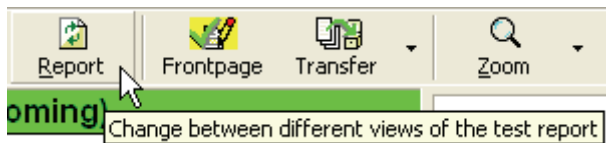
- Export the entire Test Report (Customer Test Report)
- Export the current Test Report page
- Export all pages containing tests out of tolerance
- Export the tests marked in the [Test Overview Tab](#) [p. 2.74]
- Select the export format, PDF and RTF are available
- Preview the PDF file of the entire Test Report

Using additional Test Report Printout Modes

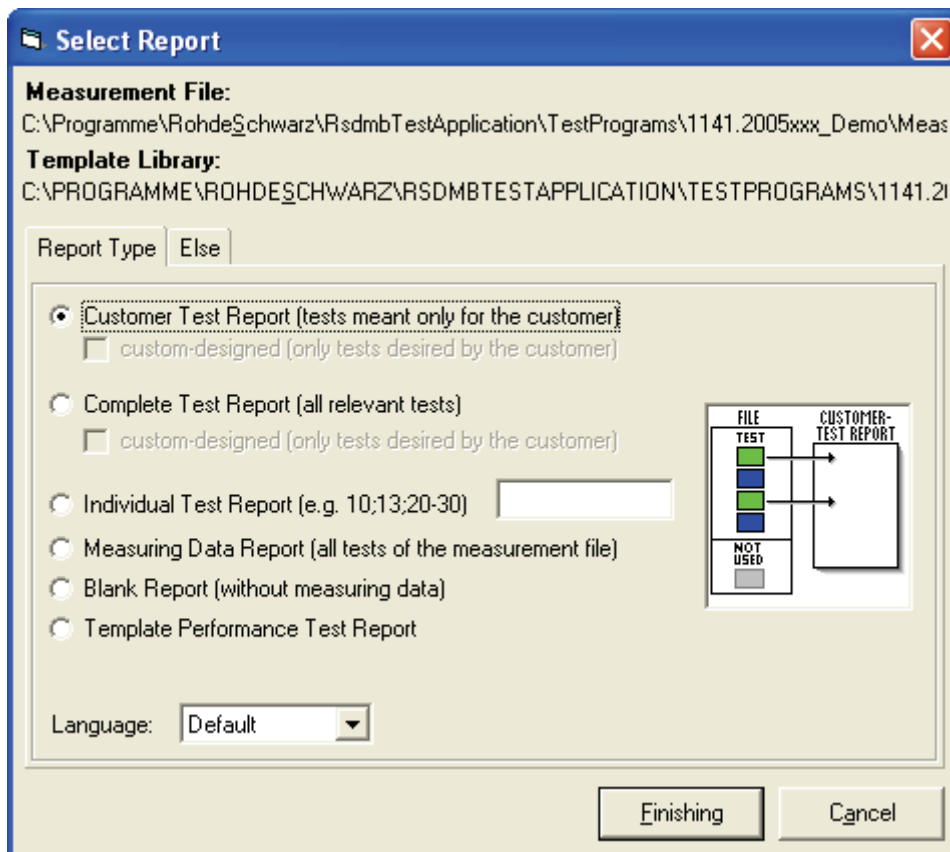
By default the Test Report Printout Mode is set to *Customer Test Report*. This shows all of the tests which will be printed in *Customer Test Report*.

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).

- ▶ Use 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](#) [p. 2.50], and which are marked for the *Customer Test Report* by the Test Program.

Customer Test Report (tests meant only for the customer)

- ▶ 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](#) [p. 2.50].

Complete Test Report (all relevant tests)

- ▶ 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](#) [p. 2.74].

Individual Test Report (e.g. 10;13;20-30)

- ▶ Select **Measuring data Report** in the *Report Type* tab to show all tests contained within the current measurement file.

Measuring Data Report (all tests of the measurement file)

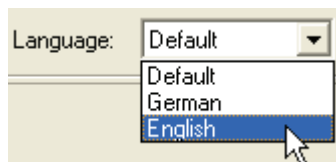
- ▶ Select **Blank Report** in the *Report Type* tab to show the test report template only. No test point results will be shown.

Blank Report (without measuring data)

- ▶ 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.

Template Performance Test Report

- ▶ 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.

With block- and section-number
 Without measuring data
 With formatting masks

Editing the Front Page Data

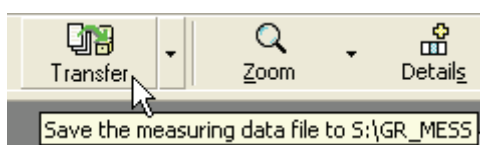
- ▶ Use the **Frontpage** button to edit data which has been entered at startup of the DUT test (see [Filling in Test Report Front Page Data](#) [p. 2.54]).



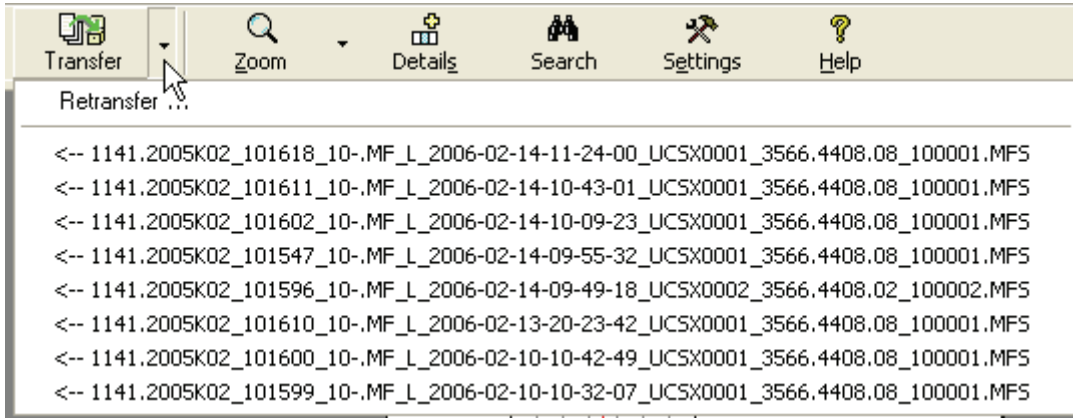
The Front Page Data dialog will open to allow the relevant data entry.

Transfer the Measurement File

- ▶ Use the **Transfer** button to transfer the current measurement file to the measurement file repository. For more information see [Transfer of Measurement Files](#) [p. 2.98].



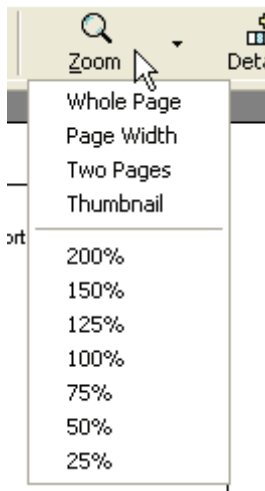
- ▶ Use the **Transfer** drop down button to retransfer a file from measurement file repository to the measurement file directory. For more information see [Transfer of Measurement Files](#) [p. 2.98].



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.

Zooming the Test Report Area

- ▶ Use the **Zoom** button or the **Zoom** drop down button to zoom the displayed Test Report page to a suitable size.



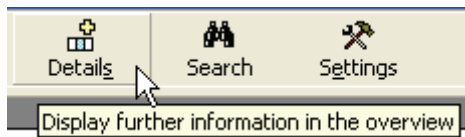
- ▶ Left double click on the [Test Report Area](#) [p. 2.78] to zoom one step into the page.
- ▶ Right click on the [Test Report Area](#) [p. 2.78] and use the **Zoom** command from the context menu to zoom the Test Report page.
- ▶ Use the *Direct Zoom Mode* by holding the **Ctrl**-key on the keyboard pressed while moving the mouse cursor to the [Test Report Area](#) [p. 2.78]. 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.



Note: When having zoomed into the page with a 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).

Extended Test Overview Tab

- ▶ Use the **Details** button to enhance the [Test Overview Tab](#) [p. 2.74] columns with additional columns.

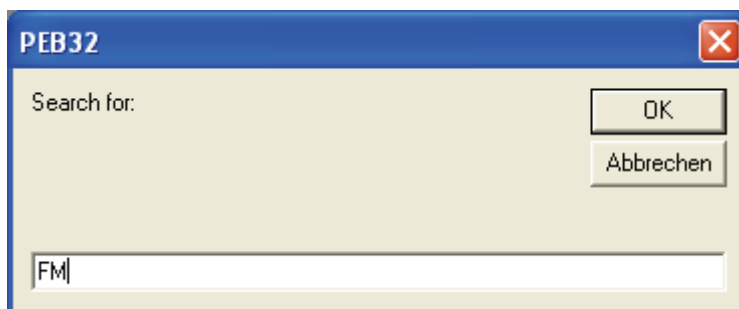


Searching in the Test Report

- ▶ Use the **Search** button to find strings in the current Test Report.

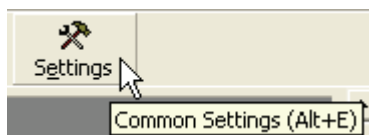


The search dialog will open to allow entry of the text to be searched for.



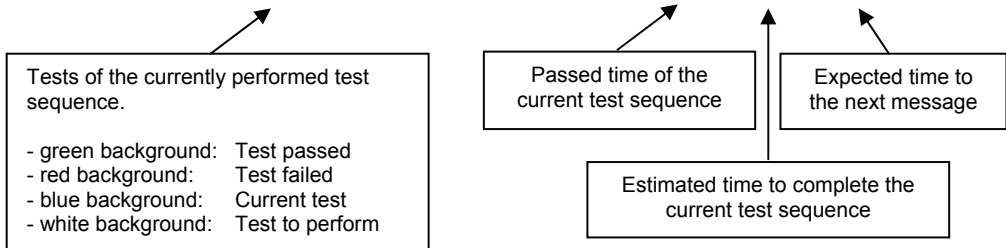
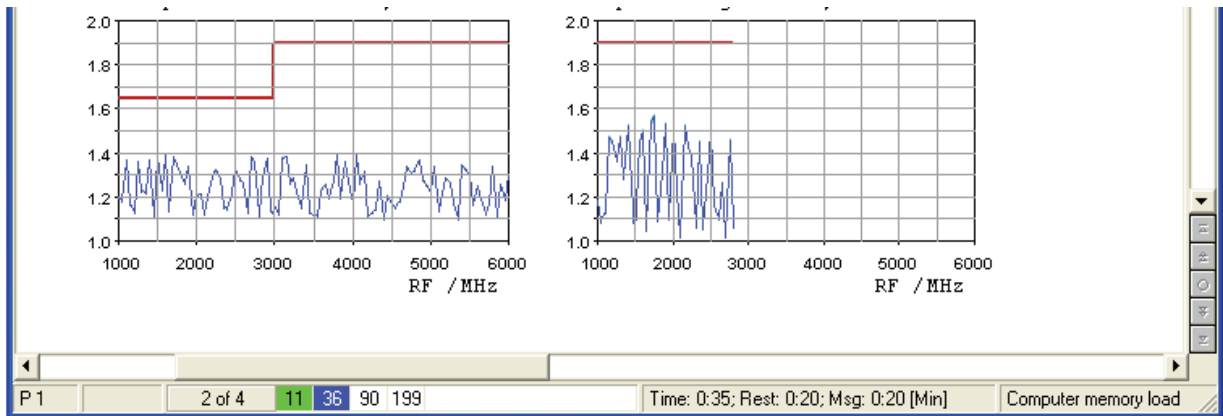
Test Report Settings

- ▶ Use the **Settings** button to adjust the Test Report setting. For further information see [Automatic Transfer Settings](#) [p. 2.99] and [Test Report Options](#) [p. 4.139].



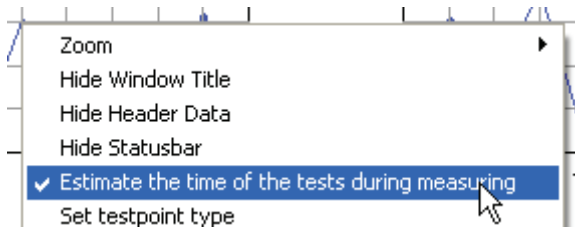
Measurement Window

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.



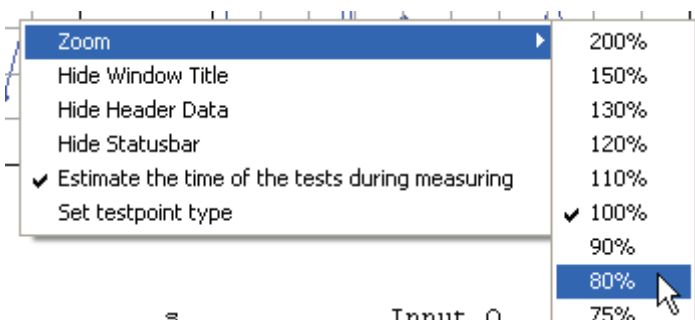
Additionally, the tests of the currently performed test sequence and the estimated time that is required to complete the test sequence is shown.

- ▶ 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.

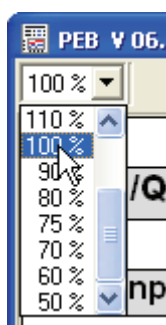


Zooming the Measurement Window

- ▶ Right click on the *Measurement Window* and use the **Zoom** command from the context menu to zoom the window



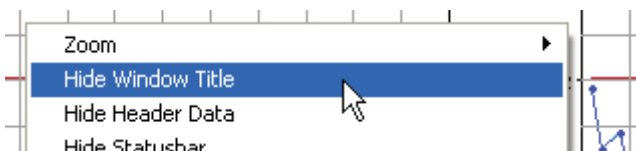
- ▶ or use the zoom control of the window header.



Customizing the Measurement Window

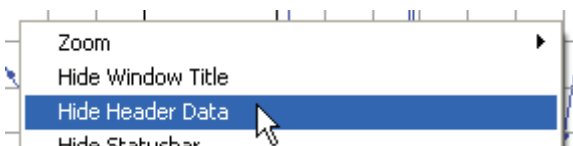
Showing/Hiding the Window Title

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



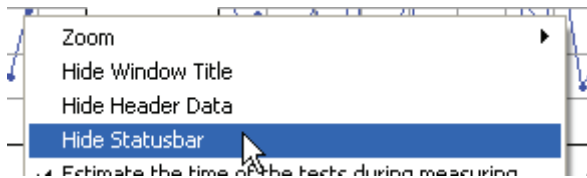
Showing/Hiding the Window Header

- ▶ 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.



Customizing a Chart

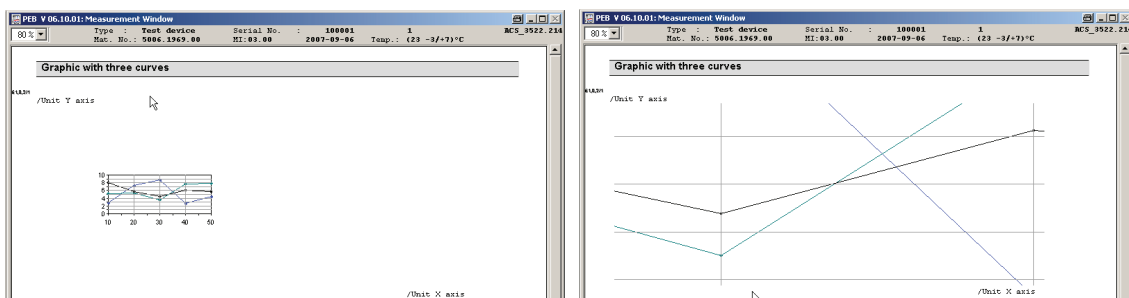
The visualization of the charts can be adjusted, e.g. to examine data more closely or to isolate a part of the chart. However, the adjustments affect only the selected chart in its reserved area of the measurement window.

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

- ▶ **Note:** 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.

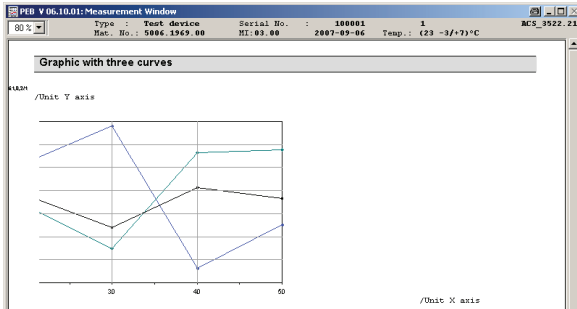
Scaling a Chart

- ▶ Press the **CTRL** button 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.



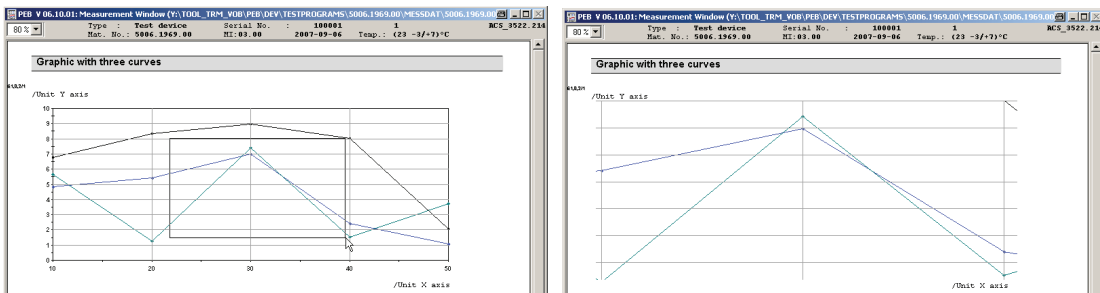
Moving a Chart

- ▶ Press the **SHIFT** button 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.



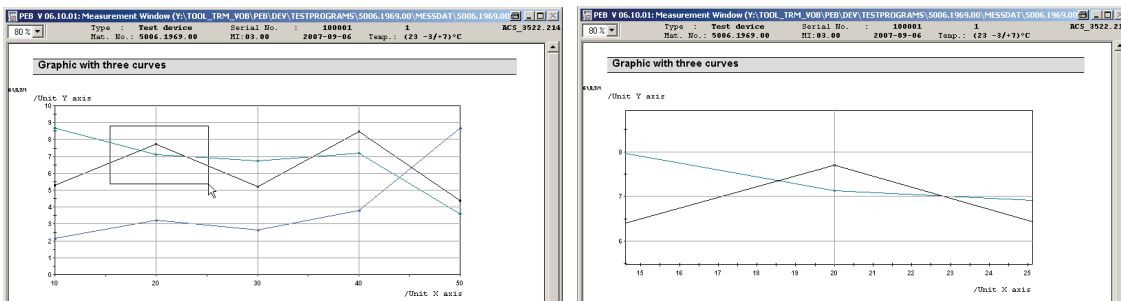
Zooming a Chart (Graphics Zoom)

- ▶ Press the **CTRL** button and hold down the left mouse button while selecting the area to be zoomed.



Zooming a Chart (Axis Zoom)

- ▶ Press the **SHIFT** button and hold down the left mouse button while selecting the area to be zoomed.

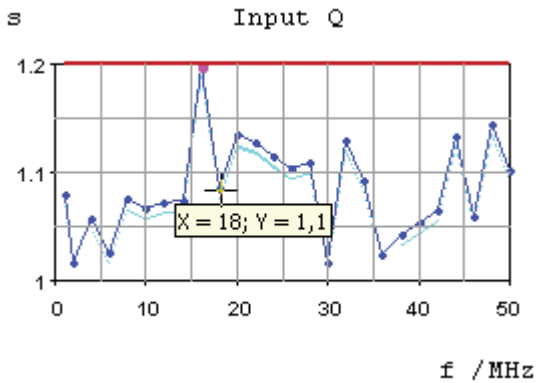


Resetting a Chart

- ▶ Right click on the chart and press the **R** key.

Displaying Values of a Chart

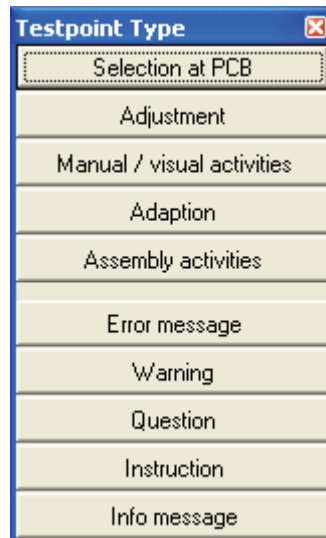
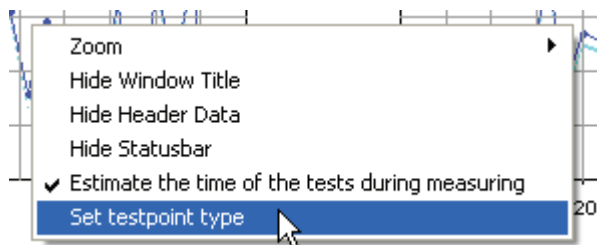
- ▶ Move the mouse over a test point to display the X/Y values of the test point.



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 [Interrupt Panel](#) [p. 2.31]) 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.



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

Layout and Content of printed Test Reports

Printed test reports have the following layout:

Page 1 (front page):

Incoming Test Report								
Designation:	Communication Tester							
Type:	CMU200							
Material No.:	1100.0008.02							
Serial No.:	832770025							
Referring to Test Documentation:	Test Instruction							
Modification Index/Issue Test Documentation:	3.04/2002-12-06							
Options:	E81, B11, E81, K21, K22, K23							
Customer's Order No.:	2233							
Manufacturer's Order No.:	44							
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Page No.</td> <td style="padding: 2px; text-align: center;">1</td> <td style="padding: 2px; text-align: center;">2-4</td> </tr> <tr> <td style="padding: 2px;">Modification Index</td> <td style="padding: 2px; text-align: center;">15</td> <td style="padding: 2px; text-align: center;">14</td> </tr> </table>			Page No.	1	2-4	Modification Index	15	14
Page No.	1	2-4						
Modification Index	15	14						
Test Department:	MENE							
Name:	Keller	Customer:						
Date:	2003-06-03	Date: _____						
This EDR is the part: all not to be signed!								
		Page 14						

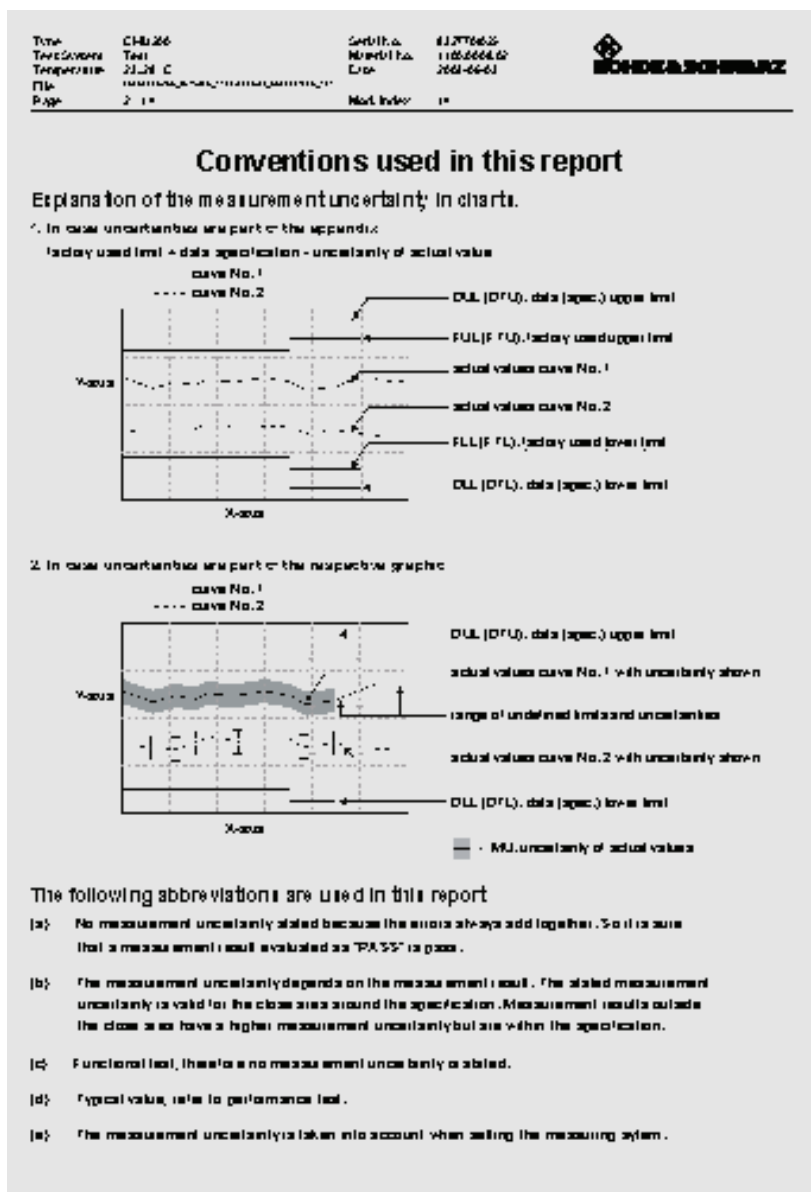
The front page contains the DUT and order-specific data entered in the DUT data window and Front Page edit window and an area for the customer signature.

The headline is created dependent on the selected Test Report status. For further information see [Filling in Test specific Data](#) [p. 2.41].

Possible headlines for a test report:

- (1) TEST REPORT, if Test Mode “Outgoing” selected
- (2) INCOMING TEST REPORT, if Test Mode “Incoming” selected.

Page 2



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

Page 3

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.


Type	CNU200	Serial No.	832770025	
Test System	Testsystem	Material No.	1100 000802	
Temperature	23.28 °C	Date	2003-05-16	
File	1000000_02_01-AES_11000000_02_02770-025_101			
Page	3 / 10	Mod. Index	14	

Table of contents

1. Identification	4
2. EEPROM Status	5
3. Selftest Measurements	6
4. TX AMPs modulation	9

1. <u>Display and keyboard (5.2.1)</u>					Pass	
2. <u>Frequency setting (5.2.2)</u>						
Frequency	Min	Max	Actual	Unit		
10.000 MHz	9.999999	10.000001	10.000000	MHz	Fail	
60.000 MHz	59.999999	60.000001	60.000002	MHz		
90.000 MHz	89.999999	90.000001	90.000000	MHz		
.....		
.....		
and s.o						
3. <u>Settling Time (5.2.4)</u>						
		DUL	Actual	MU	Unit	
Settling Time		60.0	59.8	0.50	ms	UGB

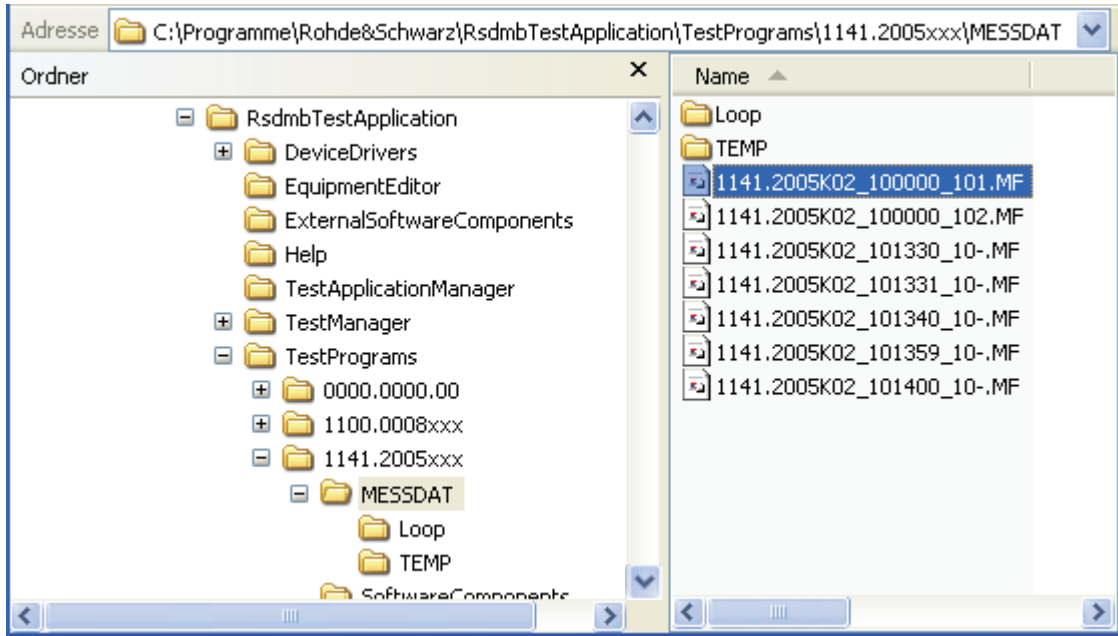
From page 5, the measurement results are listed. Only pages of tests actually run will be printed. No blank result pages will be printed.

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 [Terms and Abbreviations in Test Reports](#) [p. 2.67].

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.

The TM G5 provides a mechanism to rename the measurement file names. For further information about file names see [Encoding of transferred Measurement Files](#) [p. 2.102]. Additionally, this mechanism compresses the measurement file and moves the file to the [Measurement File Repository](#) [p. 2.103]. This compressing, renaming and moving procedure is called Measurement File Transfer.

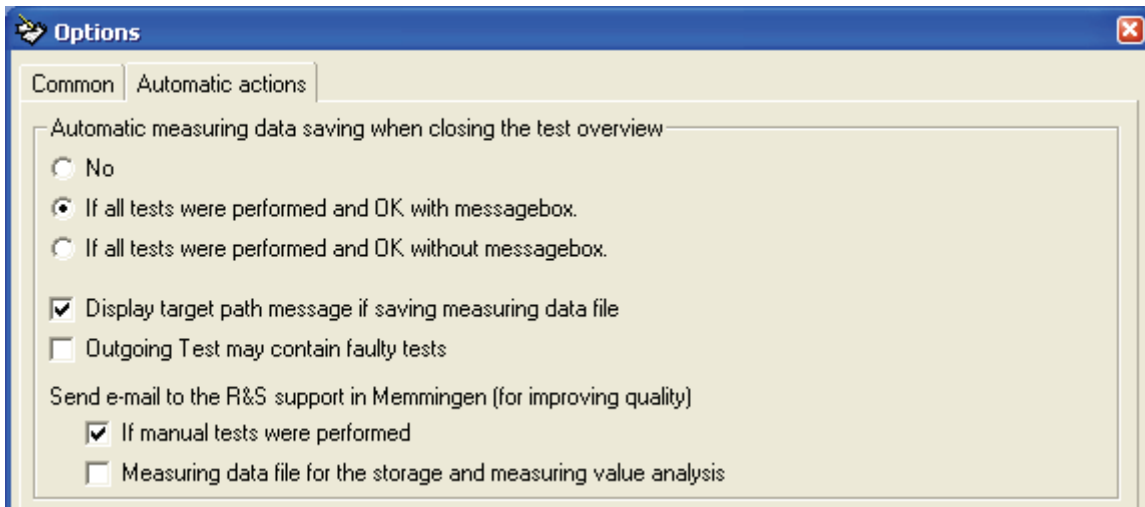
To make the file handling more safe and comfortable, an automatic transfer mechanism is implemented within the TM G5. Measurement files which are found as completed can be transferred to the repository automatically.

 **Note:** The Test Application configuration tool [Tweak TM G5](#) [p. 6.150] has to be used to change the location of the [Measurement File Repository](#) [p. 2.103].

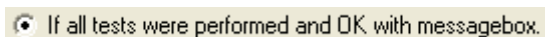
Transfer Settings

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

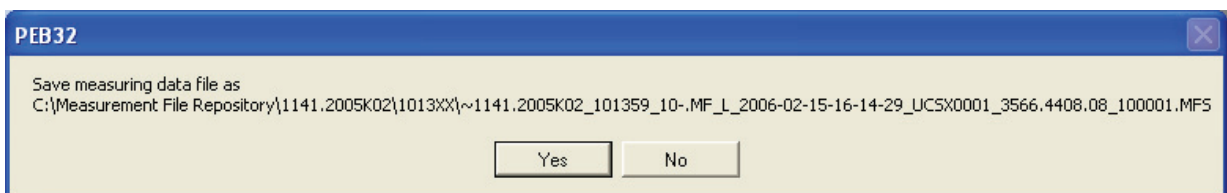
- 1 Open a Test Report (see [Handling of Test Reports](#) [p. 2.68]).
- 2 Open the [Test Report Settings](#) [p. 2.88] menu.
- 3 Select the tab Automatic actions.



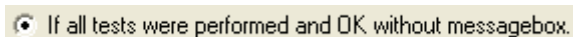
- ▶ Select ***If all tests were performed and OK with messagebox*** to save a measurement file automatically.



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.





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

- (1) All of the tests of the [Master Test Sequence and Master Test Sequence Appendix](#) [p. 2.50] have been executed.
- (2) All of the executed tests have a PASS status.
- (3) The [Test Report Front Page Data](#) [p. 2.54] have been entered.

- ▶ Select **No** to switch off the automatic transfer mechanism.

No

- ▶ 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 [Transfer the Measurement File](#) [p. 2.85]).

Display target path message if saving measuring data file

- ▶ 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 [Transfer the Measurement File](#) [p. 2.85]), even if not all tests have a PASS status.

Outgoing Test may contain faulty tests

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.

If manual tests were performed

- ▶ 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.

Measuring data file for the storage and measuring value analysis

Automatic Transfer

By default a measurement file will be transferred automatically to the [Measurement File Repository](#) [p. 2.103] if the following conditions are fulfilled:

- (1) The Measurement File Repository has been defined, see [Tweak TM G5](#) [p. 6.150].
- (2) The Automatic Transfer mechanism has been switched on, see [Transfer Settings](#) [p. 2.99].
- (3) All of the required tests for the current DUT have been executed, see [Performing a complete DUT Test](#) [p. 2.50].
- (4) All of the executed tests have a PASS status.
- (5) The front page data has been entered, see [Filling in Test Report Front Page Data](#) [p. 2.54].



Note: 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 [Filling in Test specific Data](#) [p. 2.43]).



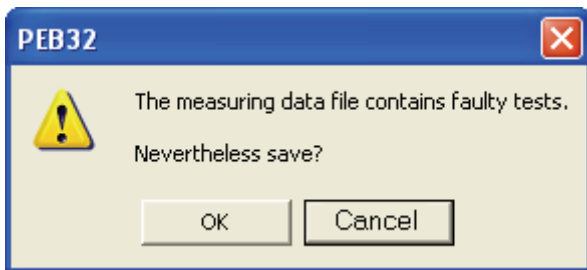
Note: There is a special condition, if the Incoming Test contains failed tests. In this case the Incoming Test will be transferred automatically during the transfer procedure of the Outgoing Test. This information is displayed within the [Info Area](#) [p. 2.72] of the Test Report.

Manual Transfer

A measurement file can also be transferred manually, if the preconditions for an [Automatic Transfer](#) [p. 2.101] are not fulfilled or the automatic transfer is switched off. For further information see [Transfer Settings](#) [p. 2.99].

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

- 1 Open a Test Report (see [Handling of Test Reports](#) [p. 2.68]).
- 2 Use the **Transfer** button of the Test Report toolbar to transfer the current measurement file (see [Transfer the Measurement File](#) [p. 2.85]).
- 3 Confirm the query.

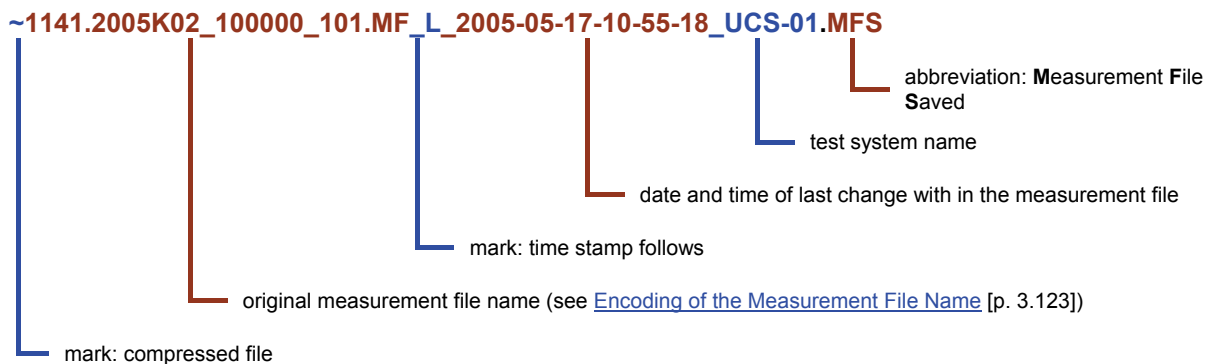


Encoding of transferred Measurement Files

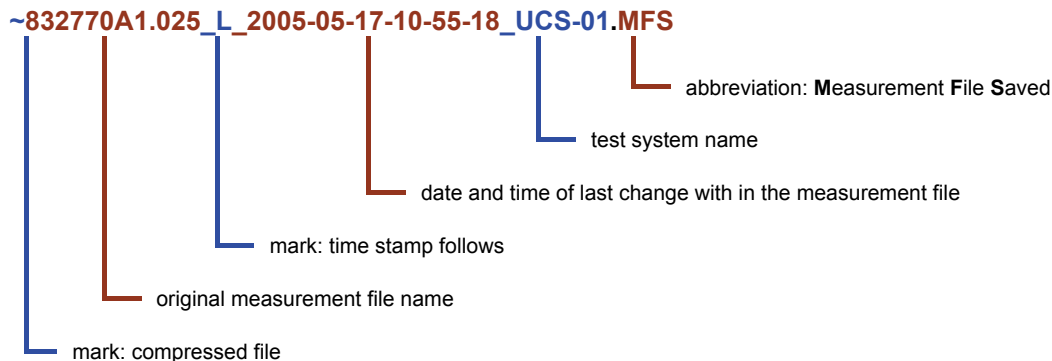
Before a measurement file is transferred to the [Measurement File Repository](#) [p. 2.103] the original file is compressed to save disk space and renamed to obtain a unique file name.

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

Standard Device Data Format (material and serial number):

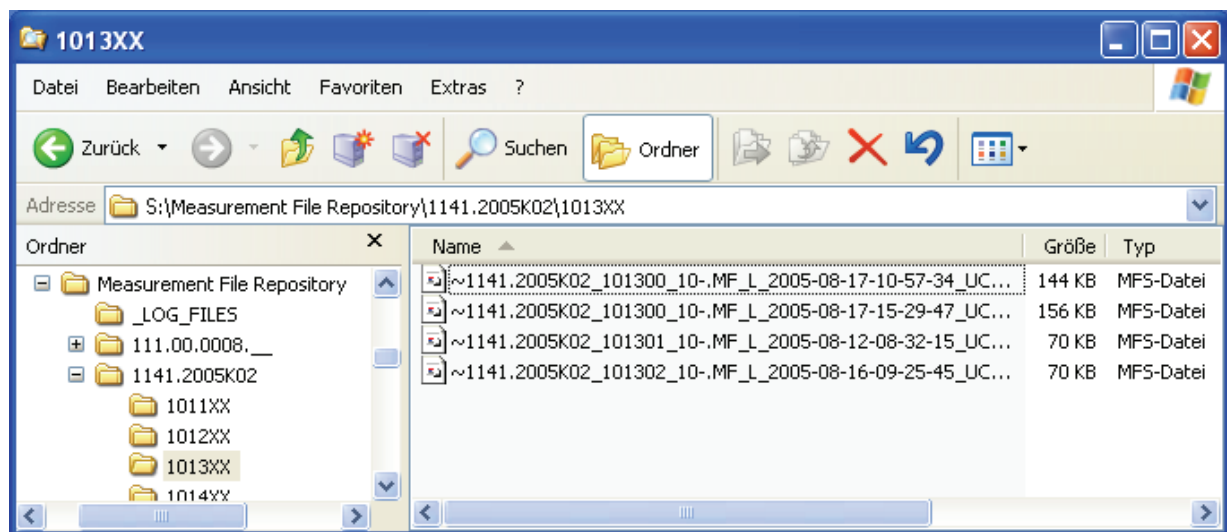


Old-fashioned Device Data Format (ident and serial number):



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 [Tweak TM G5](#) [p. 6.150].

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](#) [p. 2.39].

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 [p. 2.41]) 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 [p. 2.42]).

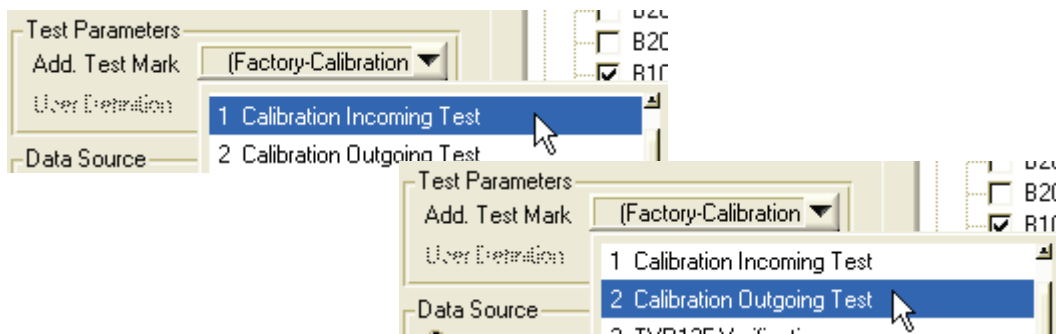
3 Extended Features of the TM G5

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.

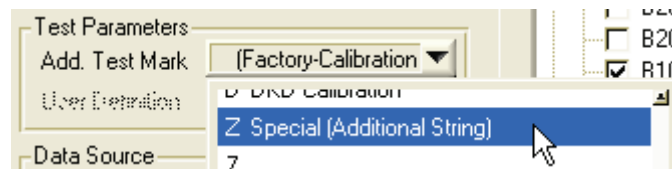
- 1 Open the [Configuration Database Editor](#) [p. 2.39].
- 2 Open the [Additional Test Mark](#) [p. 2.43] list.
- 3 Select the required Test Mark, for example the test mark incoming and outgoing tests



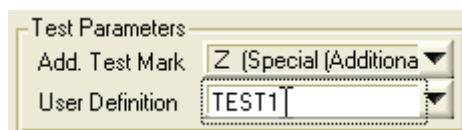
The list of predefined Test Marks depend on the current [Test System Mode](#) [p. 3.127]. At the end of this section a [Description of the predefined Test Marks](#) [p. 3.105] are listed.

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:



An additional text can help to identify the background of the special test or the special test environment:



Note: 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 (see Using the Additional Test Mark [p. 3.104])

Working with Breakpoints

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



Note: The different breakpoint modes can be combined as needed.

The [Interrupt Panel](#) [p. 2.31] 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.

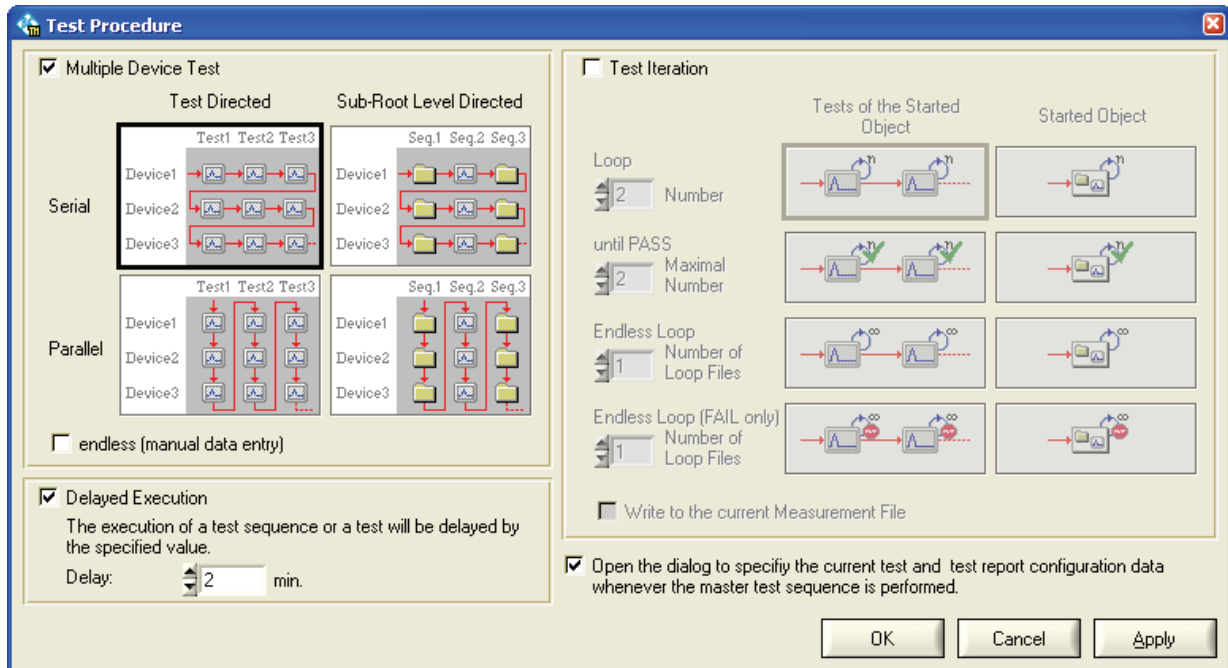


Note: Depending on the TM G5 version the additional breakpoint may be disabled.

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 [p. 3.109] is switched on.
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.
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 Test Family and Test Cycles [p. 3.128].
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.

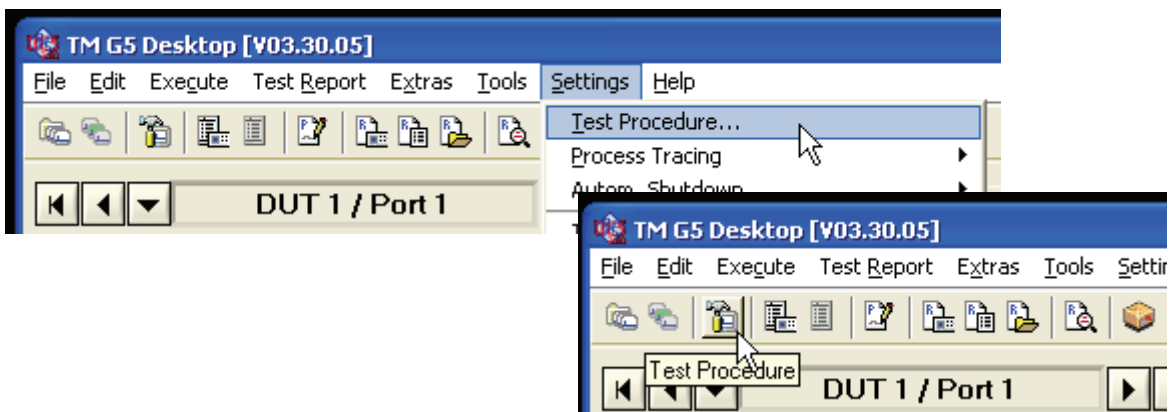
After Test Cycle	The execution is interrupted after the cycle of a test has been completed. This event will only be fired if the a child test is defined. For further information see Test Family and Test Cycles [p. 3.128].
After Test Sequence	The execution is interrupted after a test sequence has been 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 [p. 3.109] is switched on.
After Test Process	The execution is interrupted after the test process has been completed. This event is fired in any case.

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.



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

Multiple Device Testing Mode



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:

- 1 Open the [Configuration Database Editor](#) [p. 2.39].
- 2 Use the **New Device** button to create a new device.

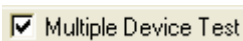



- 3 [Filling in DUT the Specific Data](#) [p. 2.41].
- 4 Use the **Apply** button to confirm the data (see [Configuration Database Editor](#) [p. 2.39]).



 **Note:** Use the  icon to remove a device.

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

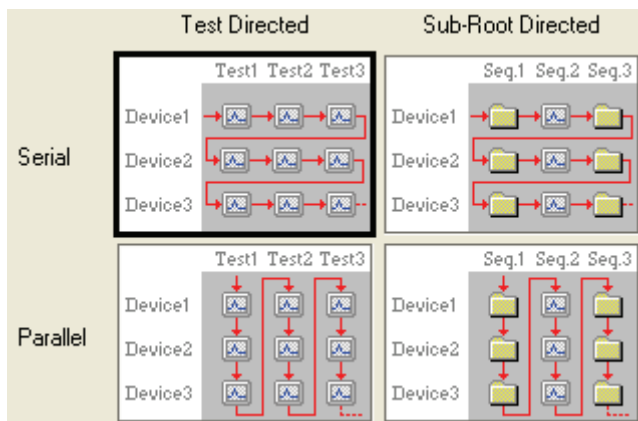
- 1 Open the [Test Procedure Dialog](#) [p. 3.108].
- 2 Switch on the Multiple Device Test.



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

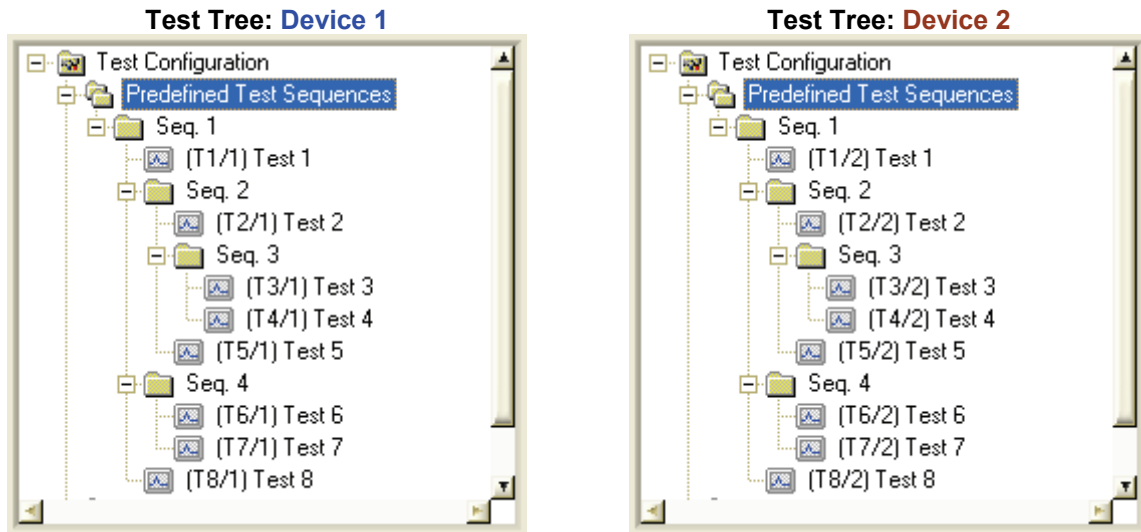
 **Note** The Multiple Device Testing Mode can also be switched on and off by  icon in the [Status Line](#) [p. 2.29].

- 3 Select the Multiple Device Testing Mode.



1 Use the **Apply** or **Ok** button to confirm the data.

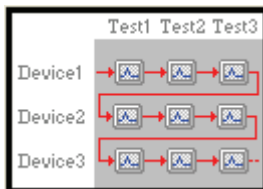
The example below is used to describe the test behaviour depending on the several Multiple Device Testing Modes. For this purpose, two devices with identical test trees are used. The process descriptions list the test shortcuts, e.g. T2/1 for Test 2 of Device 1, in order of execution if the test sequence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



Note: 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
------	-------------	---------------------

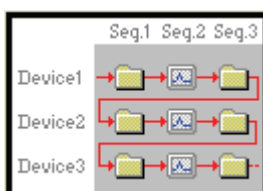
Serial Test Directed



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

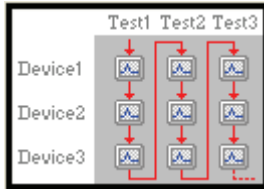


All sub-root level tests and test sequences of a device will be executed first before the current device is changed.

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

Mode	Description	Process Description
------	-------------	---------------------

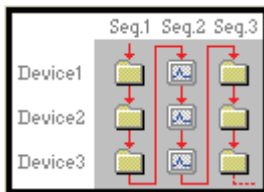
Parallel Test Directed



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](#) [p. 2.41] can be entered while a test is running and the duration of the test procedure.

 **Note:** 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
<input type="checkbox"/> endless (manual/automatic data entry)	The Endless Option is disabled. No DUT data can be entered while a test is running.
<input checked="" type="checkbox"/> 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 [p. 2.27] 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.

Mode	Description
<input checked="" type="checkbox"/> endless (automatic data entry)	<p>New DUT data are entered automatically while a test is running.</p> <p>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.</p> <p>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.</p>

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 its 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:

- 1 Open the [Test Procedure Dialog](#) [p. 3.108].
- 2 Switch on the Delayed Execution.

Delayed Execution



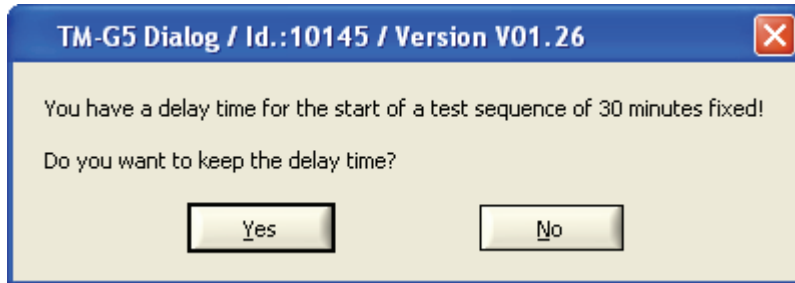
Note : The Delayed Test Sequence Execution can also be switch on and off by  icon in the [Status Line](#) [p. 2.29].

- 3 Define the time to delay:

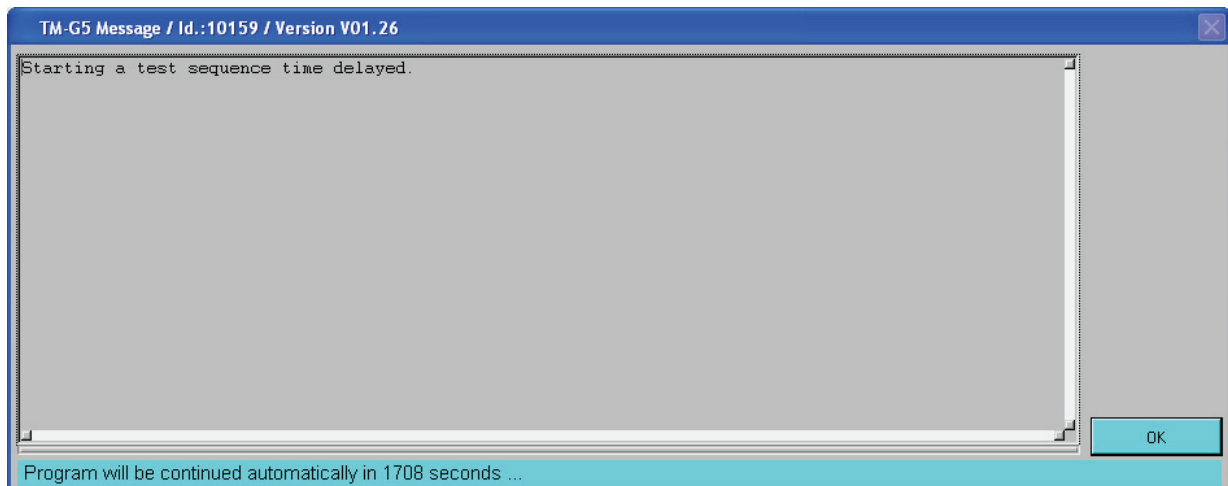
Delay: min.

- 4 Use 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.

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:

- 1 Open the [Test Procedure Dialog](#) [p. 3.108].
- 2 Switch on the Test Iteration Mode.

Test Iteration

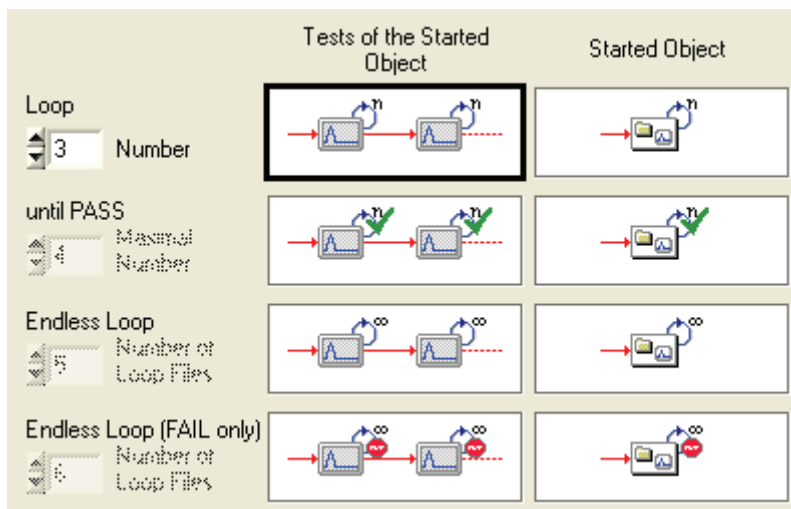


Note : The Multiple Test Iteration Mode can also be switch on and off by  icon in the [Status Line](#) [p. 2.29].

- 3 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.

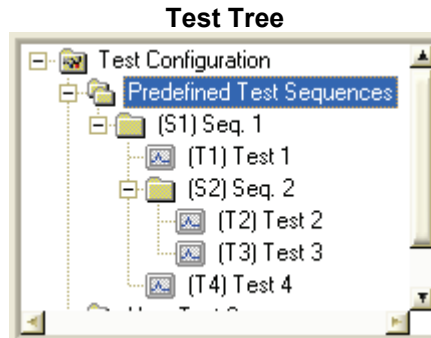
Write to the current Measurement File

- 4 Select Test Iteration Mode.

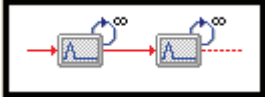
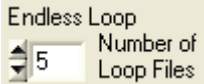
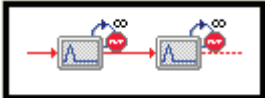
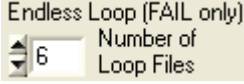


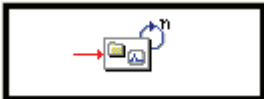
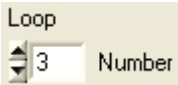

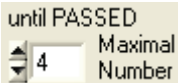
- 5 Use the **Apply** or **OK** button to confirm the data.


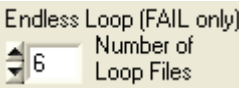


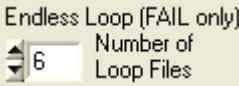

The example below is used to describe the test behaviour depending on the several Test Iteration Modes. The process descriptions list the test shortcuts, e.g. T2 for Test 2, in order of execution if the indexed test sequence or test is started.



Mode	Description	Process Description
<p>Loop Tests of the Started Object</p>	<p>If a test sequence is started, the tests of this test sequence will be executed n times.</p> <p>If a test is started, this test will be executed n times.</p> <p>The number of iterations has to be defined.</p> <ul style="list-style-type: none"> Use the numeric control to define the number of iterations 	<p><u>Seq. 1:</u></p> <p>T1 → T1 → T1 → T2 → T2 → T2 → T3 → T3 → T3 → T4 → T4 → T4</p> <p><u>Test 2:</u></p> <p>T2 → T2 → T2</p>
<p>Loop until PASS Tests of the Started Object</p>	<p>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.</p> <p>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.</p> <ul style="list-style-type: none"> Use the numeric control to define the max. number of iterations 	<p><u>Seq. 1:</u></p> <p>T1 → T1 (Status: PASS) → T2 → T2 → T2 → T2 → T3 (Status: PASS) → T4 (Status: PASS)</p> <p><u>Test 2:</u></p> <p>T2 → T2 → T2 (Status: PASS)</p>

Mode	Description	Process Description
<p>Endless Loop Tests of the Started Object</p> 	<p>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.</p> <p>If a test is started, this test will be executed permanently.</p> <p>If the measurement results are created in the loop directory the number of loop files has to be defined.</p> <ul style="list-style-type: none"> ▶ Use the numeric control to define the number of loop files. 	<p><u>Seq. 1:</u></p> <p>T1 → T1 → T1 → T1 → T1 (test terminated) → T2 → T2 → T2 → T2 → T2 → T2...</p> <p><u>Test 2:</u></p> <p>T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2...</p>
	<p>Note: The numeric control is enabled only if the test results are written into Loop Files (see Working with Test Iterations [p. 3.114]).</p>	
<p>Endless Loop (FAIL only) Tests of the Started Object</p> 	<p>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.</p> <p>If a test is started, this test will be executed as long as the status of this test is unequal to PASS.</p> <p>If the measurement results are created in the loop directory the number of loop files has to be defined.</p> <ul style="list-style-type: none"> ▶ Use the numeric control to define the number of loop files. 	<p><u>Seq. 1:</u></p> <p>T1 → T1 → T1 → T1 → T1 → T1 (Status: PASS) → → T2 (Status: PASS) → T3 (Status: PASS) → T4 → T4 → T4 → T4 → T4 → T4 → ... → T4 (Status: PASS)</p> <p><u>Test 2:</u></p> <p>T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → ... → T2 (Status: PASS)</p>
	<p>Note: The numeric control is enabled only if the test results are written into Loop Files (see Working with Test Iterations [p. 3.114]).</p>	

Mode	Description	Process Description
<p data-bbox="260 376 432 434">Loop Started Object</p> 	<p data-bbox="539 376 1070 434">The started object, test or test sequence, will be executed n times.</p> <p data-bbox="539 468 1070 497">The number of iterations has to be defined.</p> <ul data-bbox="539 530 1070 589" style="list-style-type: none"> ▶ Use the numeric control to define the number of iterations 	<p data-bbox="1107 376 1390 405"><u>Seq. 1:</u></p> <p data-bbox="1107 439 1390 526">T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4</p> <p data-bbox="1107 560 1390 589"><u>Test 2:</u></p> <p data-bbox="1107 622 1390 651">T2 → T2 → T2</p>
<p data-bbox="245 730 445 788">Loop until PASS Started Object</p> 	<p data-bbox="539 730 1070 853">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.</p> <ul data-bbox="539 887 1070 945" style="list-style-type: none"> ▶ Use the numeric control to define the max. number of iterations 	<p data-bbox="1107 730 1390 759"><u>Seq. 1:</u></p> <p data-bbox="1107 792 1390 1167">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)</p> <p data-bbox="1107 1200 1390 1229"><u>Test 2:</u></p> <p data-bbox="1107 1263 1390 1292">T2 → T2 → T2 → T2</p>

Mode	Description	Process Description
<p>Endless Loop Started Object</p> 	<p>The started object, test or test sequence, will be executed permanently.</p> <p>If the measurement results are created in the loop directory the number of loop files has to be defined.</p> <ul style="list-style-type: none"> ▶ Use the numeric control to define the number of loop files. 	<p><u>Seq. 1:</u></p> <p>T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4 → T1 → T2 → T3 → T4 → T1 → T2 → T3 → ...</p>
		<p><u>Test 2:</u></p> <p>T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → ...</p>
	<p> Note: The numeric control is enabled only if the test results are written into Loop Files (see Working with Test Iterations [p. 3.114]).</p>	
<p>Endless Loop (FAIL only) Started Object</p> 	<p>The started object, test or test sequence, will be executed as long as the status of the object is unequal to PASS.</p> <p>If the measurement results are created in the loop directory the number of loop files has to be defined.</p> <ul style="list-style-type: none"> ▶ Use the numeric control to define the number of loop files. 	<p><u>Seq. 1:</u></p> <p>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)</p>
		<p><u>Test 2:</u></p> <p>T2 → T2 → T2 → T2 → T2 → T2 → T2 → T2 → ... → T2 (Status: PASS)</p>
	<p> Note: The numeric control is enabled only if the test results are written into Loop Files (see Working with Test Iterations [p. 3.114]).</p>	

Automatic Configuration Database Update

In order to force the verification or the input of the configuration data (see [Configuration Database Editor](#) [p. 2.39]) before the Master Test Sequence is performed, the related option must be set.

Proceed as follows to activate the automatic input:

- 1 Open the [Test Procedure Dialog](#) [p. 3.108].
- 2 Switch on the option.

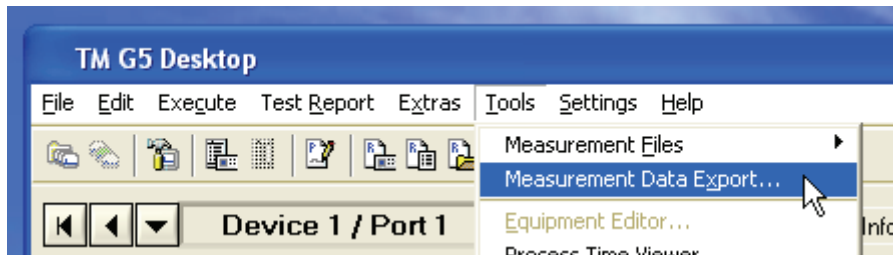
Open the dialog to specify the current test and test report configuration data whenever the master test sequence is performed.

- 3 Use the **Apply** or **OK** button to confirm the setting

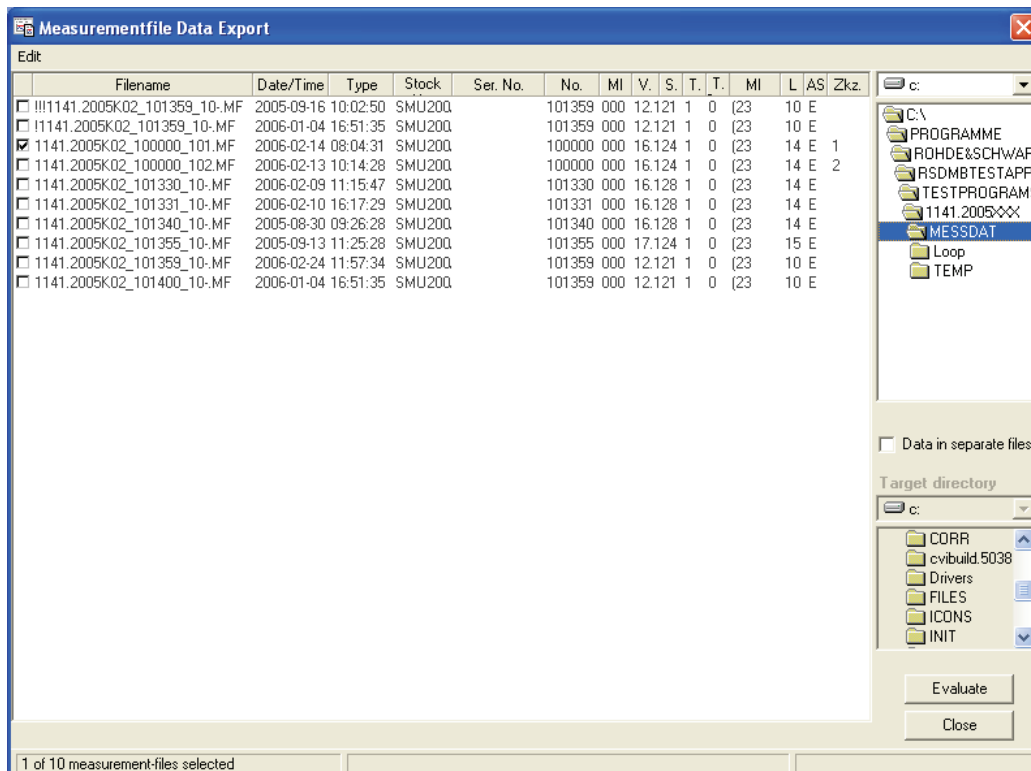
Exporting the Measurement Data

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

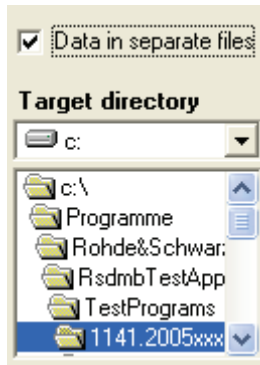
- 1 Use the Measurement Data Export command of the menu bar to open the Measurement File Data Export dialog.



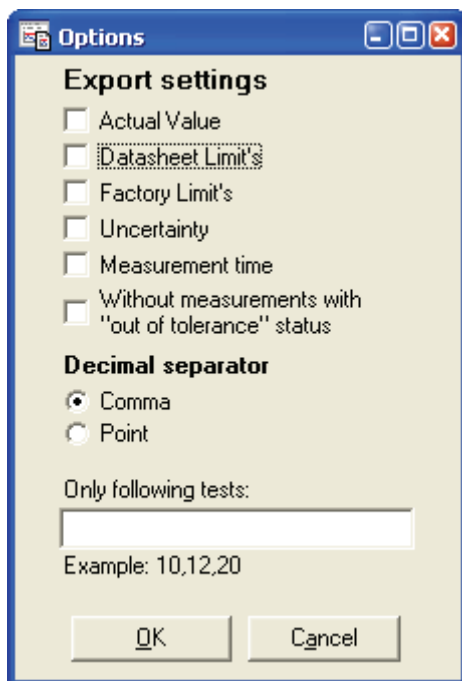
- 2 Select the measurement files which data you want to export



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



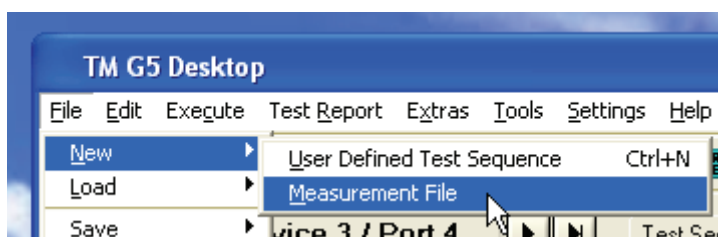
- 4 Use the **Evaluate** button to open an option dialog where the export data and the decimal separator can be selected.



- 5 Use the **OK** button to export the selected data. For this, the selected decimal separator is used.

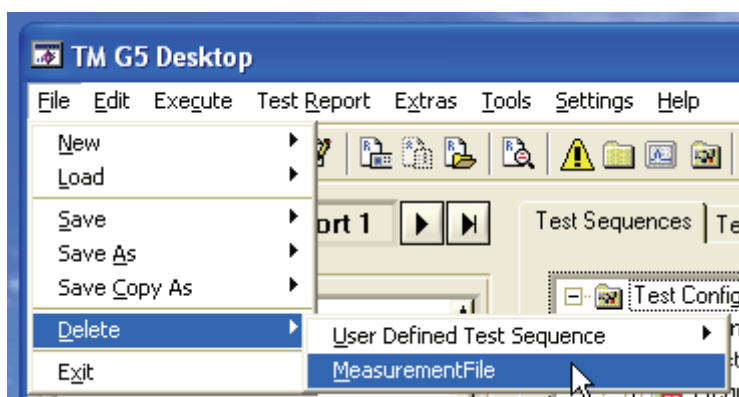
Creating and Deleting a Measurement File

- ▶ 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 [Encoding of the Measurement File Name](#) [p. 3.123].



- ▶ **Note** : 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.

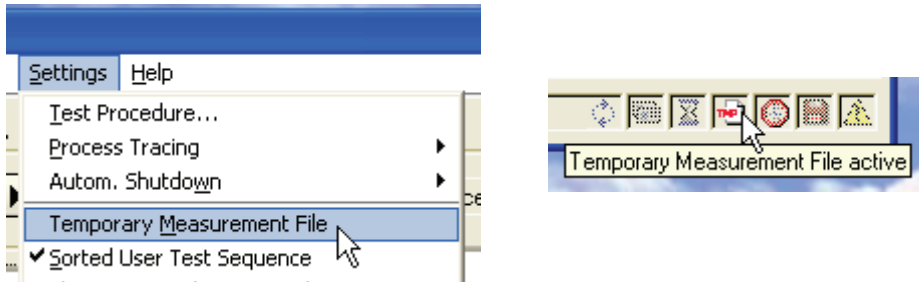
- ▶ Use the **Delete** command of the menu bar to delete the measurement file of the current device.



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.

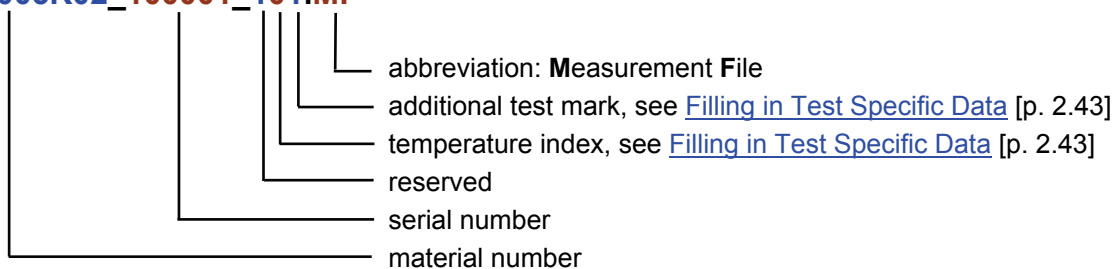


- 
Note : If the option *Temporary Measurement File* is activated, the measurement file name will turn into the TEMP--.MF. The normal [File Name Encoding](#) [p. 3.123] is switched off.

Encoding of the Measurement File Name

Standard Device Data Format:

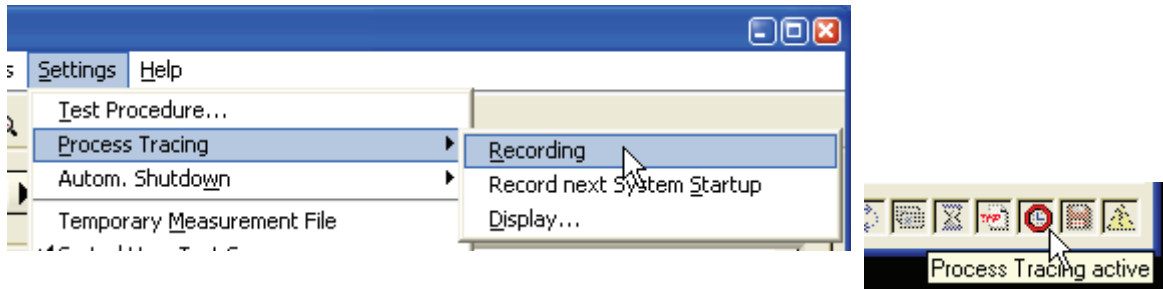
1141.2005K02_100001_101.MF



Tracing the Test Process

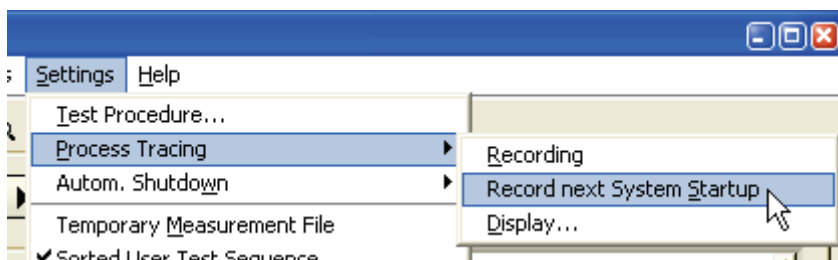
In order to analyze the system start-up and the time flow of a test sequence or a test the Process Tracing mechanism is used.

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



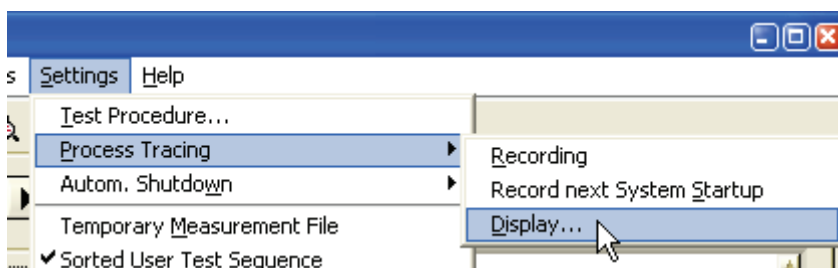
- ▶ **Note** This option is automatically switched off after a test sequence or test is completed.

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



- ▶ **Note** 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.





Note : The [Process Tracing Viewer](#) [p. 6.153] 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.

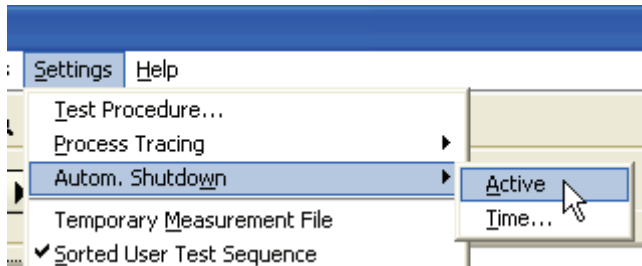
The data format is shown below.

ID	Designation	Start/Stop	Comment	Statu s	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

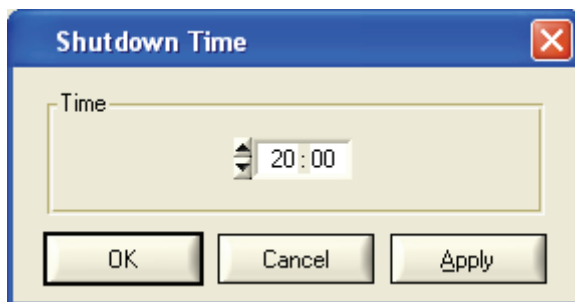
Automatic Test System Shutdown

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.



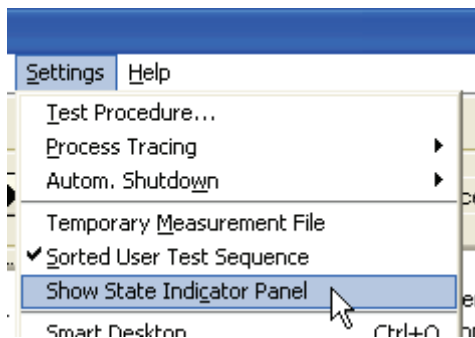
- ▶ Use the **Time** command of the menu bar to define the shutdown time by means of the following dialog.



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](#) [p. 6.161].

For an 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.



Test System Mode

The Test System Mode affects the TM 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



Note: The Test Application configuration tool [Tweak TM G5](#) [p. 6.150] has to be used to change the Test System Mode.

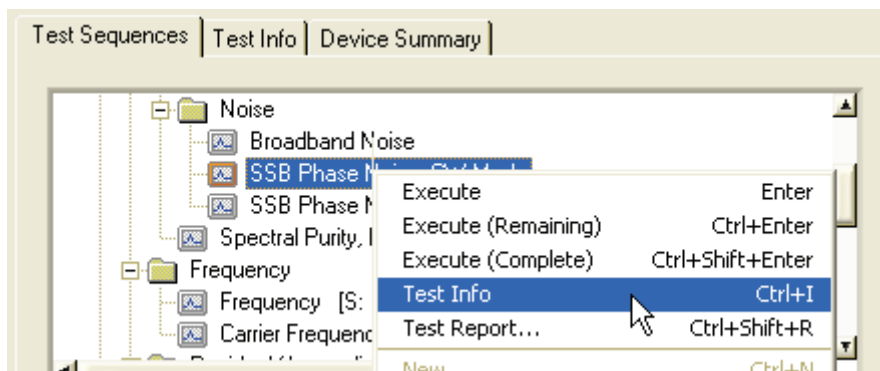
Test Family and Test Cycles

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](#) [p. 2.24]. A Child Test is only shown in the [Test Report Window](#) [p. 2.72]. 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](#) [p. 2.26].

- ▶ Right click on a test within the test sequence tree and use the **Test Info** command from the Test Sequence 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](#) [p. 2.27].

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.

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.



Warning: 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 [Transfer of Measurement Files](#) [p. 2.98]. 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.



Warning: 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 [Transfer of Measurement Files](#) [p. 2.98]. 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](#) [p. 2.29].



Measurement File Synchronization is active



Measurement File Backup is active



Measurement File Synchronization and Measurement File Backup are inactive



Note: The Test Application configuration tool [Tweak TM G5](#) [p. 6.150] has to be used to switch on the synchronization and the backup, and to define the corresponding paths.



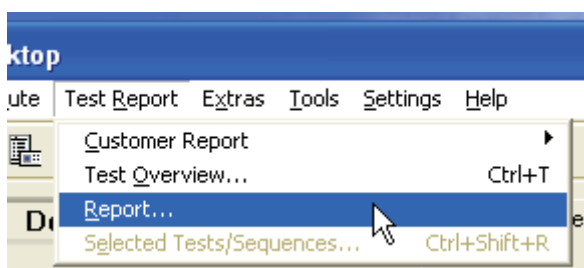
Note: Measurement File Synchronization and Measurement File Backup are mutually exclusive. The Synchronization overrules the Backup.

Creating an individual Test Report

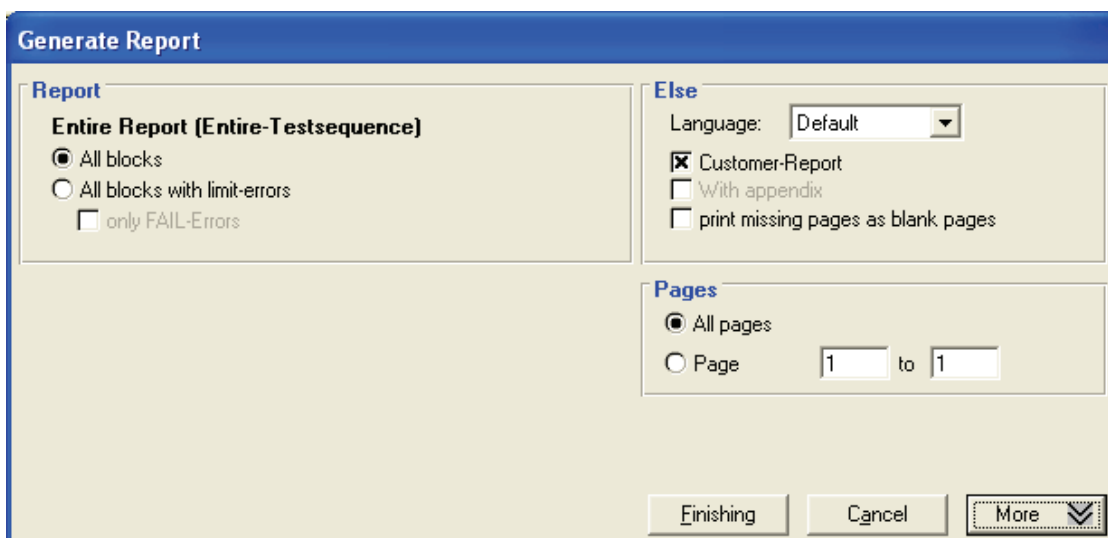
It is possible to create an individual Test Report by means of the TM G5. For that purpose, the user must define the contents of the report.

To create an individual Test Report:

- 1 Use the **Report** command to open the Generate Report dialog.



- 2 Define the contents of the Test Report.



- 3 Press the **Finishing** button.

- Use the **More** button to extend or reduce the input mask.

The screenshot shows the 'Generate Report' dialog box with the following settings:

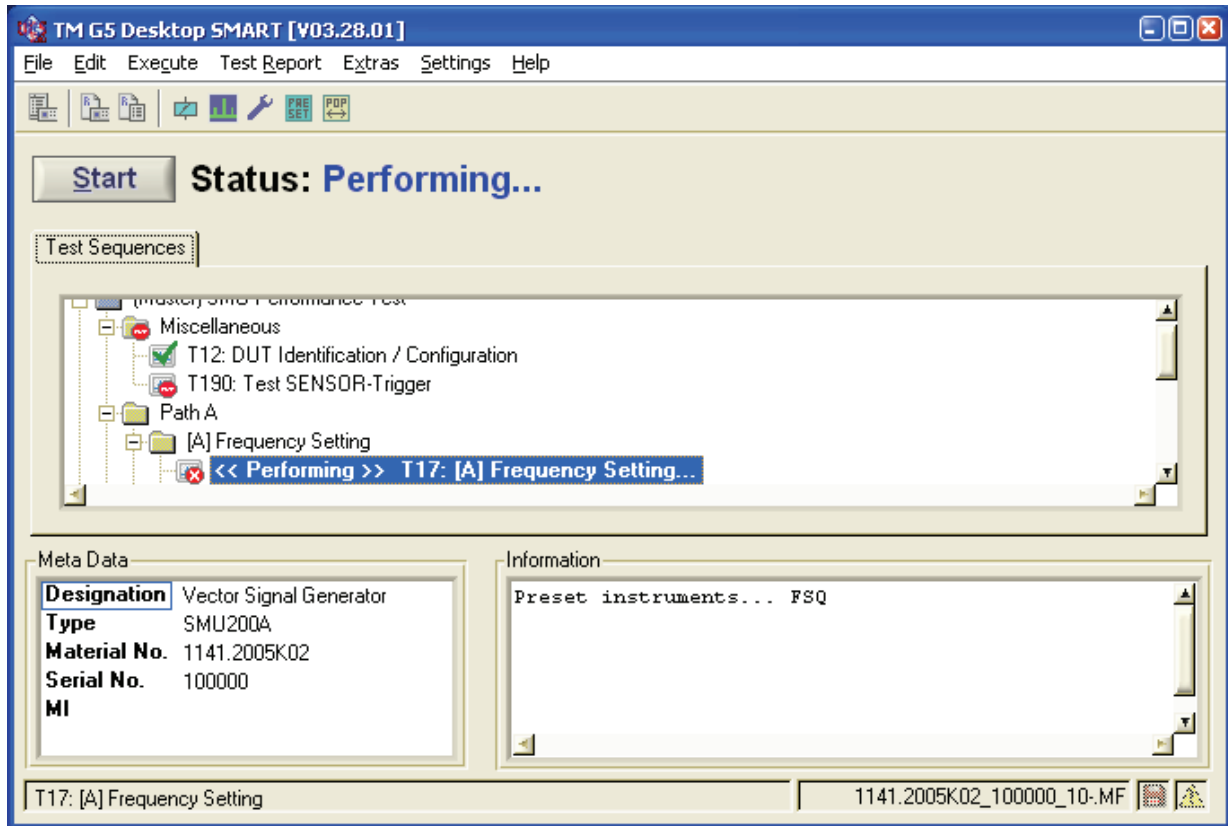
- Report - Entire Report (Entire-Testsequence):**
 - All blocks without display limit-errors
 - "Trim2" (Actual value < or > Tolerance 2)
 - "Trim2u" (Uncertainty < or > Tolerance 2)
 - All blocks with limit-errors
 - only FAIL-Errors
- Report-Variant:**
 - All blocks
 - Selected block
 - Block's: e.g.: 1;3;5-12
 - Blank Report of the selected template
- Files:**
 - Measurementfile:
 - Library-Path:
- Else:**
 - Language:
 - Customer-Report
 - With appendix
 - print missing pages as blank pages
 - With block- and section-number
 - First page without head-data
 - without actual value's
 - Limit toleranz to %
 - 0 as a limit at a one-sided tolerance
 - Using statistics data base
- Pages:**
 - All pages
 - Page to
- Report-Headline:**
 - Logo:**
 - R&S-Symbol
 - None
 - Picture

Buttons at the bottom: **Finishing**, **Cancel**, **More**

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.

Using the Smart Desktop



Beside the three desktop orientation formats compact, horizontal and vertical (see [Desktop Orientation Settings of the Standard Desktop](#) [p. 2.34]) the TM G5 provides a further form of representation, the so-called *Smart Desktop*.

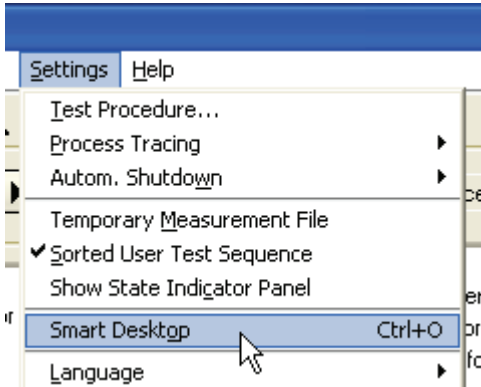
The *Smart Desktop* hides all desktop controls and menu items which are not necessary to execute the performance test of the current device. For example, only the [Master Test Sequence and Master Test Sequence Appendix](#) [p. 2.50] and the general DUT data are shown.

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.

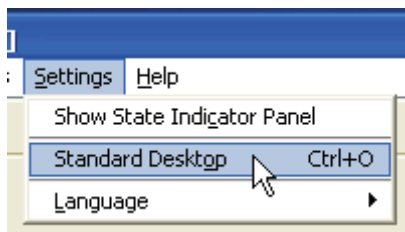
For this reasons, the *Smart Desktop* is more clearly arranged and easier to control as the *Standard Desktop*.

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*.



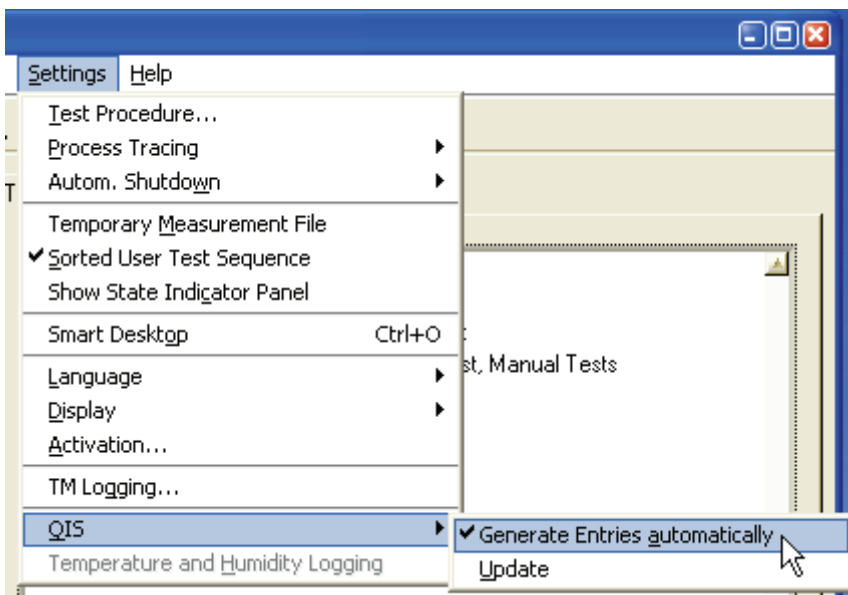
- ▶ Use the **Standard Desktop** command of the menu bar to switch from the *Smart Desktop* to the *Standard Desktop*.



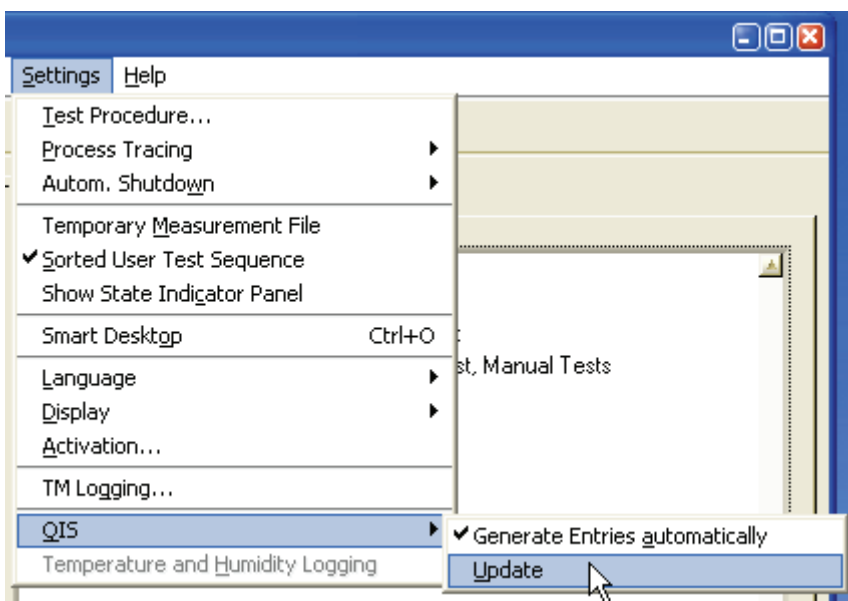
Generating QIS entries automatically

The Quality Information System (QIS) is used to register production processes, register errors and evaluate production data. The TM G5 provide an opportunity to write error codes into the QIS 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.



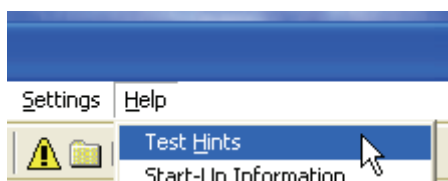
Getting Help

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.

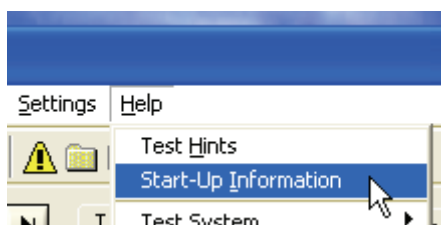
Test Hints

- ▶ Use the **Test Hints** command to get information referring to tests.



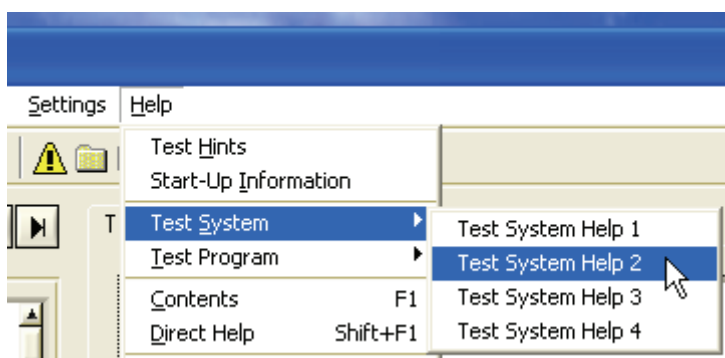
Start-up Information

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



Test System

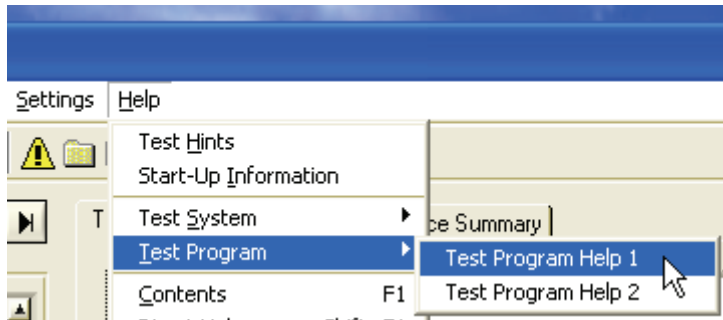
- ▶ Use the **Test System** items to get information referring to the test system.



Note : 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.

Test Program

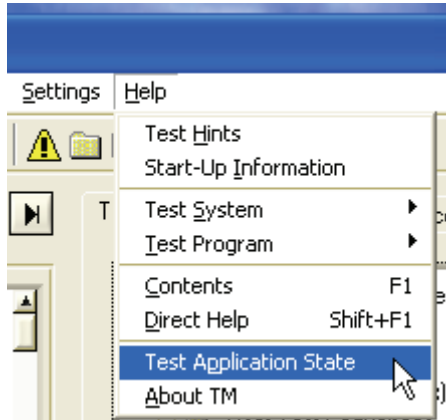
- ▶ Use the **Test Program** items to get information referring to the Test Program.



Note : 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.

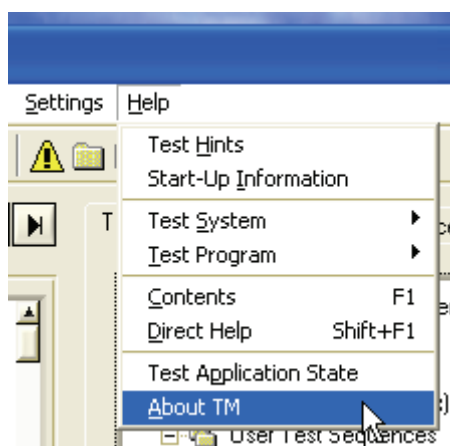
Test Application State

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

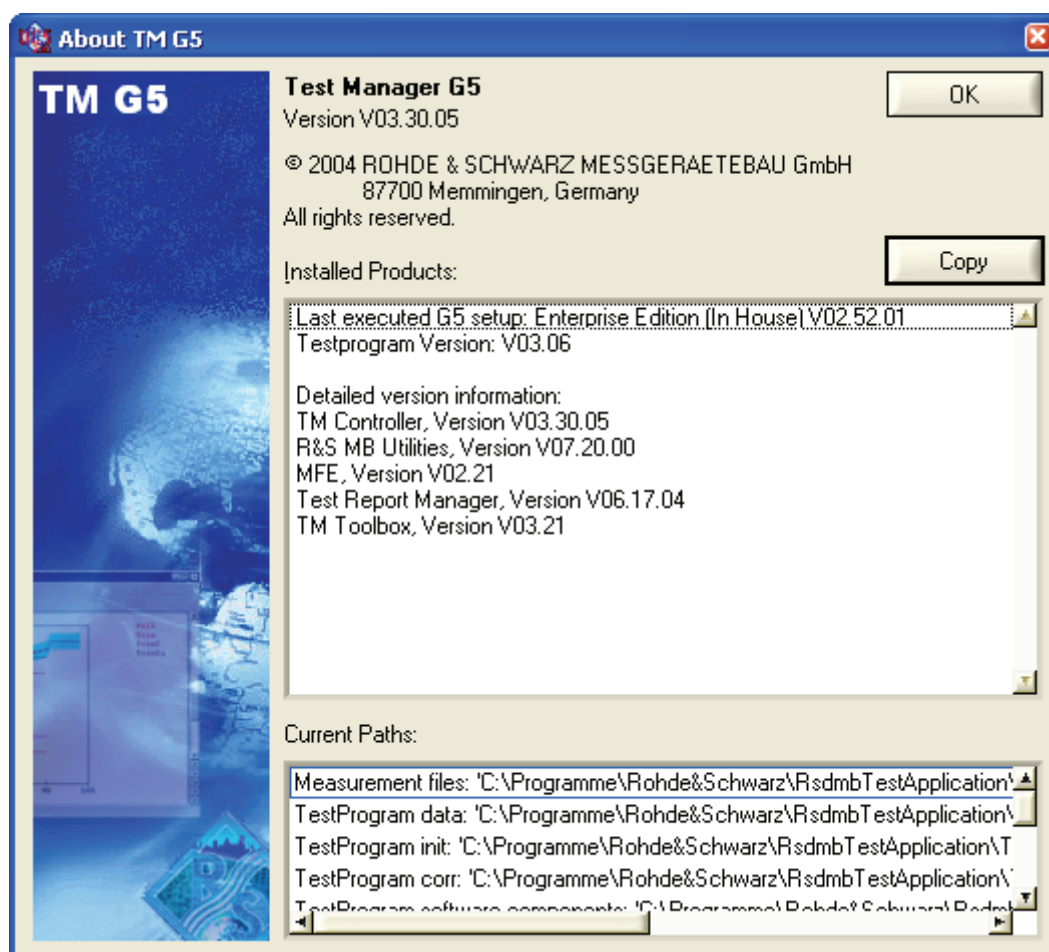


Product Information

- ▶ 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.

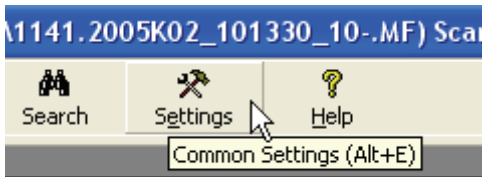


- ▶ Use the **Copy** button to copy the product information to the clipboard.

4 Extended Options

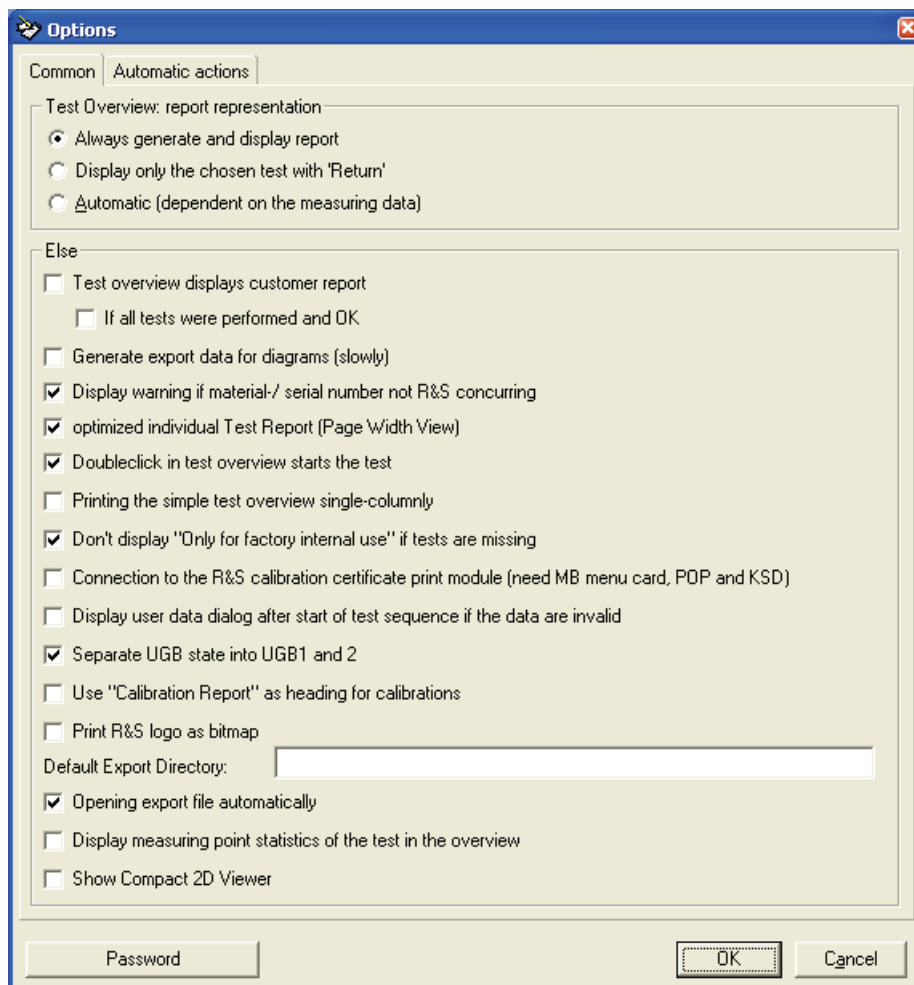
Test Report Options

- 1 Open any Test Report (see [Handling of Test Reports](#) [p. 2.68]).
- 2 Use the **Settings** button of the Test Report toolbar to open the settings menu.



Common Settings

The default common settings are as follows:

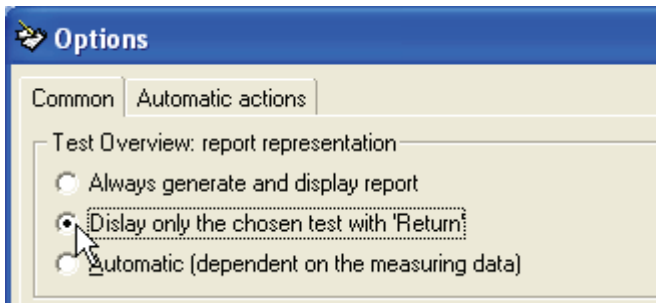


- Use the **Password** button to protect the changes.

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.

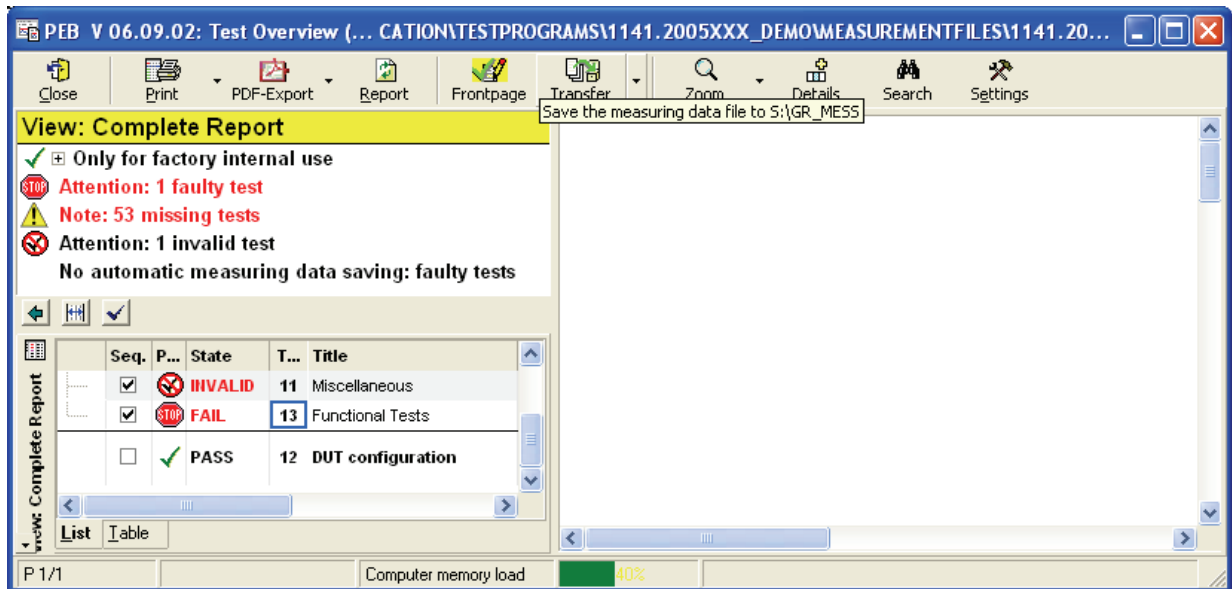
If the main reason to open the Test Overview is, to display the test status only, the creation of the test report pages can be canceled. To do so select the following option:



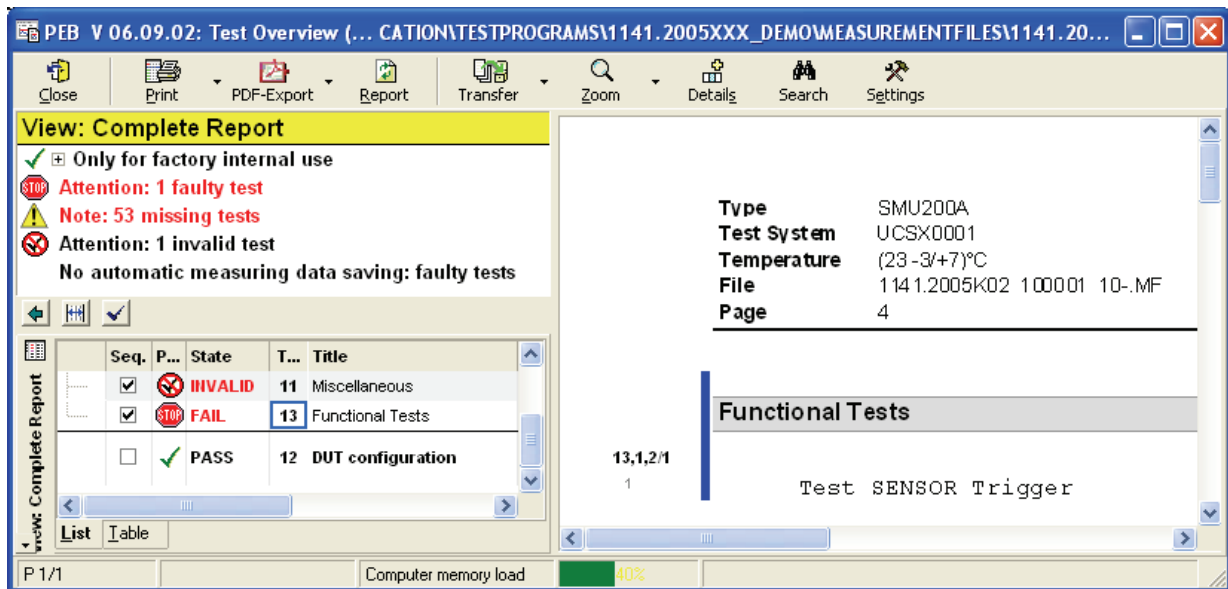
In this mode the Test Overview will be opened without the test report pages displayed which is much faster.

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

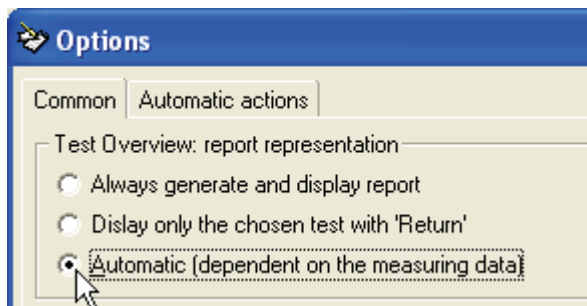
- ▶ Select a test to be displayed and press RETURN



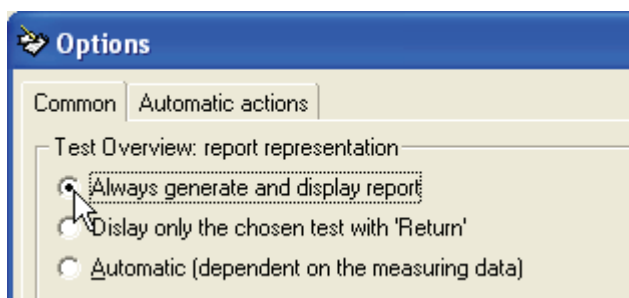
The selected test will be displayed:



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:



Further Settings

Test overview displays customer report

All tests marked for the Customer Test Report will not be accessible in the [Test Overview Tab](#) [p. 2.74].

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](#) [p. 2.78].

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](#) [p. 2.74].

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

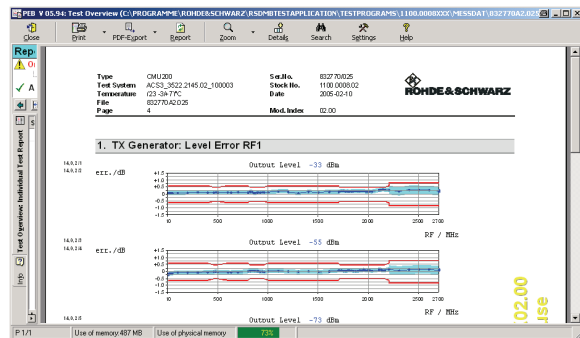
The material and serial number displayed in the test report will be checked to match the R&S standard.

By default this setting is activated.

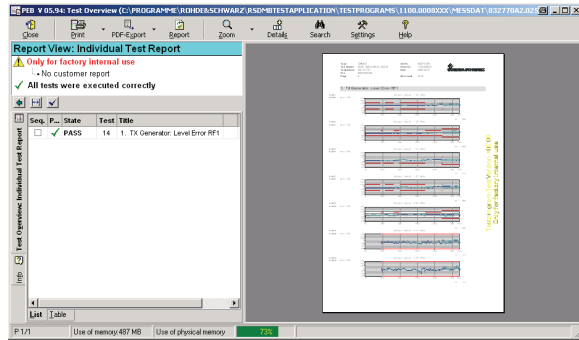
optimized individual Test Report (Page Width View)

Controls the display mode for the *Individual Test Report* view:

Activated:



De-activated:



Doubleclick in test overview starts the test

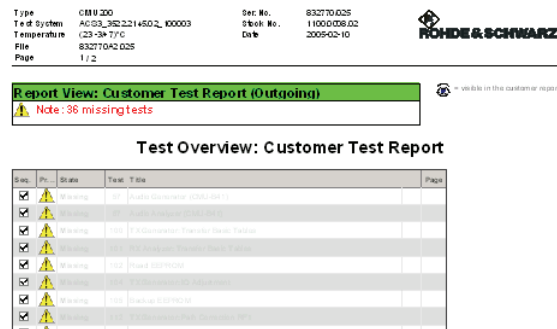
A double click in the [Test Overview Tab](#) [p. 2.74] will start the test execution.

Printing the simple test overview single-columnly

Controls the appearance of Test Overview Tab contents if the [Overview Area](#) [p. 2.73] is printed

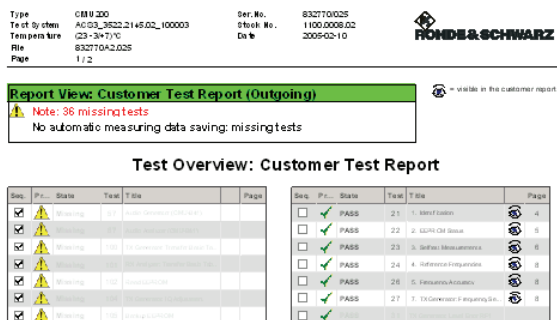
Active:

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](#) [p. 2.81]).

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 [Creating a PDF Output](#) [p. 2.81]).

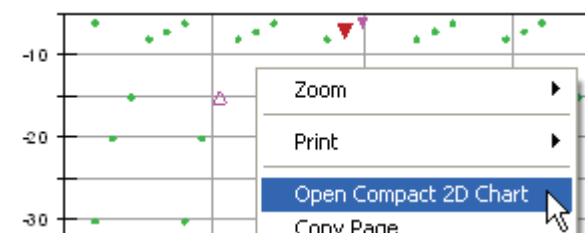
Display measuring point statistics of the test in the overview

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.

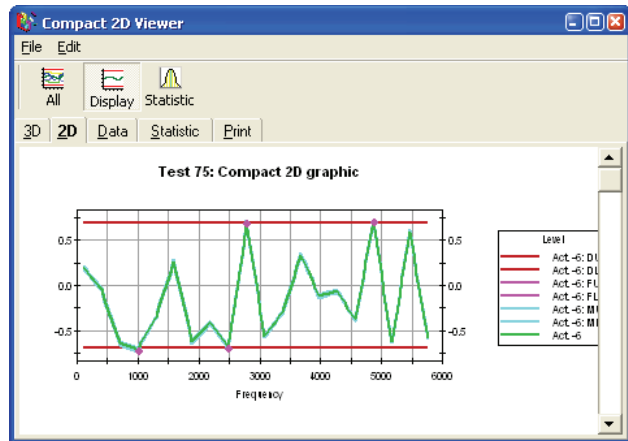


Show Compact 2D Viewer

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.

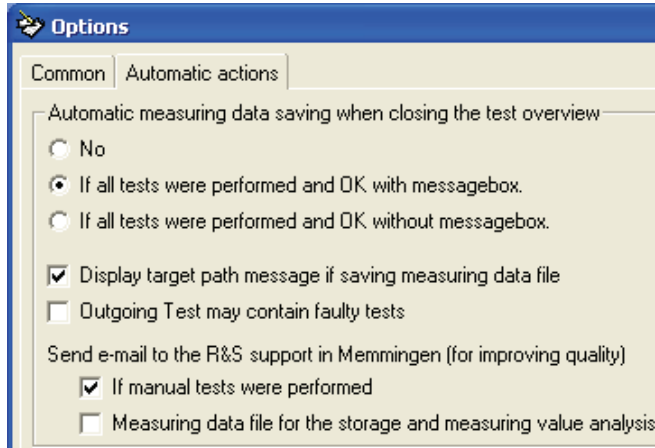


Incoming test with watermark on all sides

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

Automatic Actions

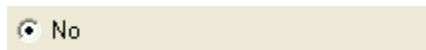
Automatic Transfer Settings



The setting of the *Measuring Data Saving Group* controls the way, the automatic measurement file transfer works. For further information see [Transfer Settings](#) [p. 2.99].

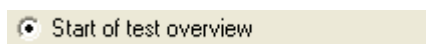
Automatic Front Page Edit

For further information see also [Automatic Test Report Front Page Data Query](#) [p. 2.56].



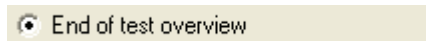
The automatic popup of the Test Report Front Page Data dialog is switched off.

The dialog has to be opened manually.

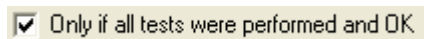


The Test Report Front Page Data dialog will pop up automatically before the Test Overview is opened.

This setting is recommended for default.



The Test Report Front Page Data dialog will pop up automatically if the Test Overview is closed.



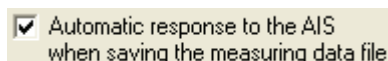
The Test Report Front Page Data dialog will only pop up if all tests have been performed and are PASS.

Further Settings



The test documentation defined by the Test Program will be checked with the entries in the PDM.

Only available in the final production plants.

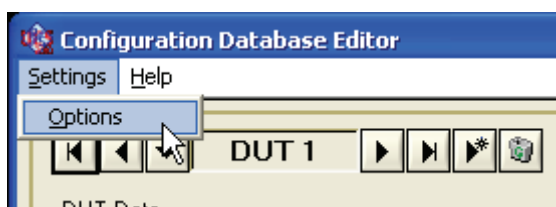


Only available in the final production plants.

Configuration Database Editor Options

The configuration data editor is used to set up [DUT and Test Configuration](#) [p. 2.39].

- ▶ 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 press the **Quit** button, create a new device and change the current device.

5 Obsolete Features of the TM G5

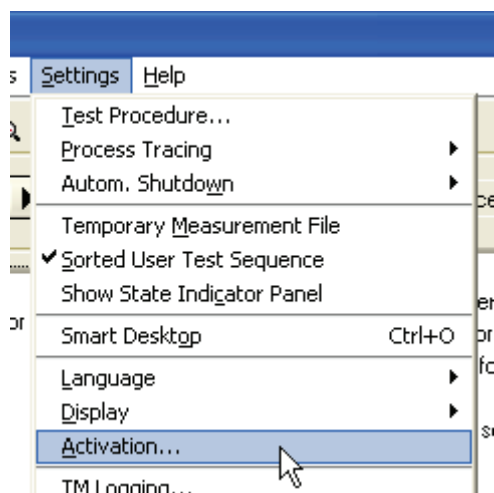
Activating the TM G5

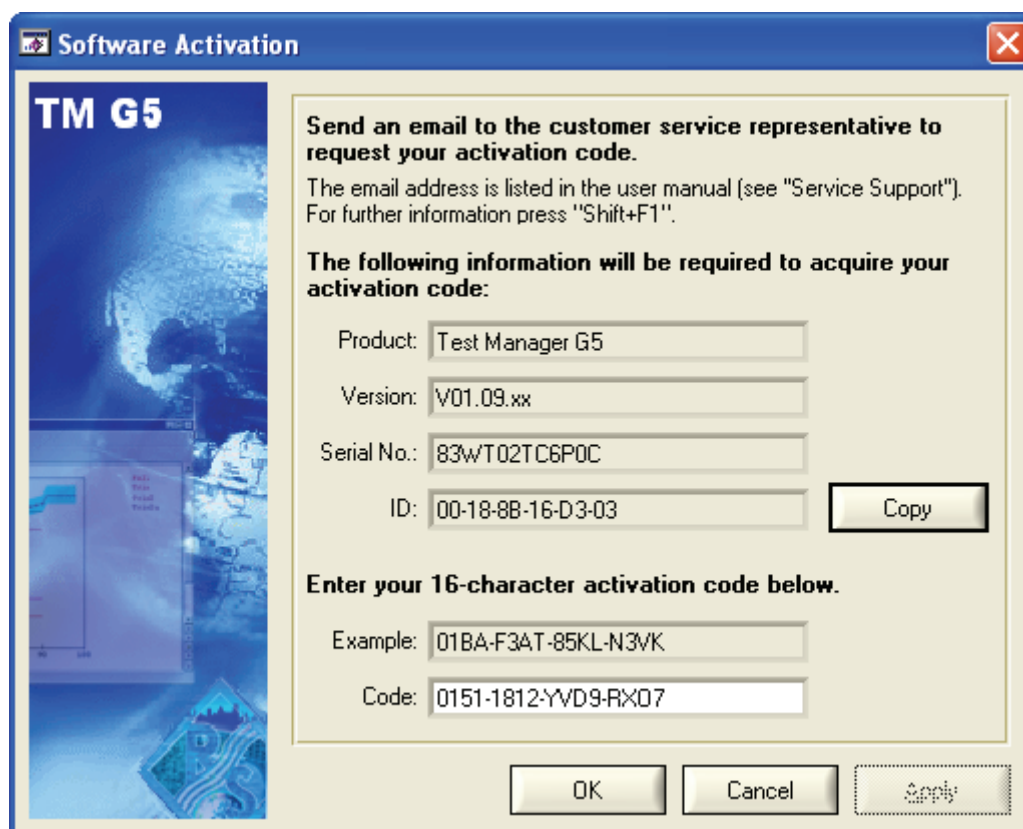


Note: The activation mechanism has been replaced by the [Licensing Operation](#) [p. 2.12]. However, in certain circumstances if the licensing operation is not available or not working the activation mechanism is reactivated.

Activation is the process of obtaining an activation code to enable TM 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 [p. 7.163]. To generate an activation code the Product Name, Product Version and System ID are used.

- Use 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.



Warning: It is strongly recommended to unplug all external network cards before the Activation is performed.

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

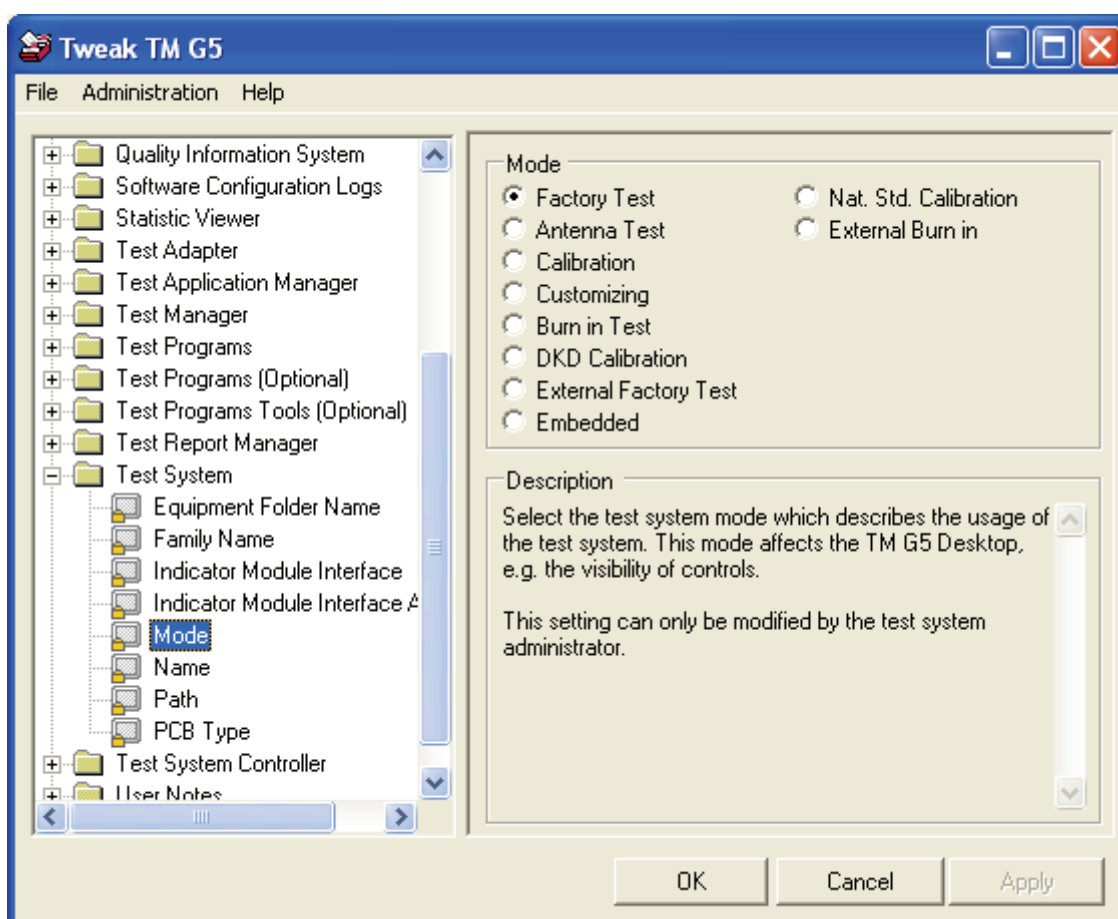


Note: The activation code is only required in case of using an Enterprise Edition of the TM G5. This is the developer version.

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

6 Additional Tools

Tweak TM G5

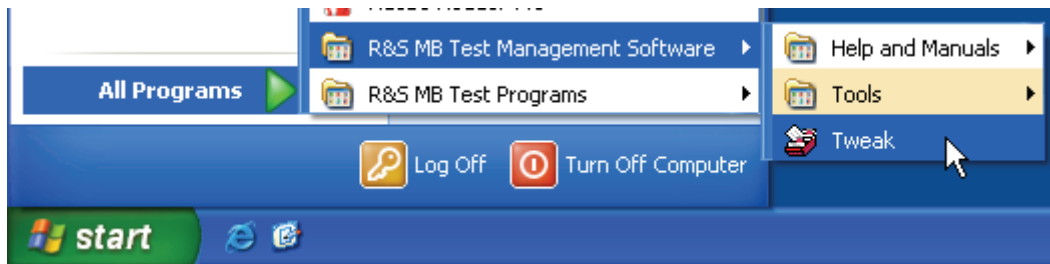




The *Tweak TM G5* is used to configure the Test Application which are based on the usage of the Test Manager G5.

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 *Tweak TM G5*.

- ▶ Use the windows start menu to open the configuration tool.



-  **Note:** Close the Test Application to make modifications.
-  **Note:** The properties are classified in several security levels and password protected. To receive the passwords turn to the [Service Support](#) [p. 7.163].

Equipment Editor

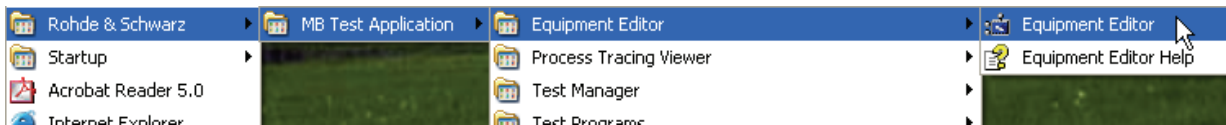
The screenshot shows the 'Equipment Editor Version 0.8.1.0' window. The title bar includes 'File Edit View Extras Testprogram Help'. Below the title bar is a toolbar with icons for file operations and navigation. The main area is titled 'Instruments Testsystem' and contains a table with the following data:

Available	Type	Designation	Materialnumber	Serialnumber	Certificate number	Calibrated until	Resourcetype	Ressource name
<input checked="" type="checkbox"/>	SMIQ03	Generator HF >MHz	1039.2000K07	100627	17-131045	30.04.2007	VISA	ASRL1::INSTR
<input checked="" type="checkbox"/>	SMHU	Generator HF >MHz	1039.2000K06	100622	17-131045	30.04.2007	USB_IO	ASRL1::INSTR:2
<input checked="" type="checkbox"/>	FMA	xx					VISA	

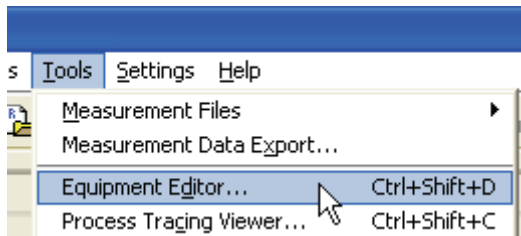
When instruments and modules are being calibrated, a record containing all the test equipment that will be used must be created. On the one hand this is necessary to generate a calibration certificate. On the other hand this ensures the traceability of the test equipment used. Therefore, the *Equipment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

For further information see the *Equipment Editor's* help.

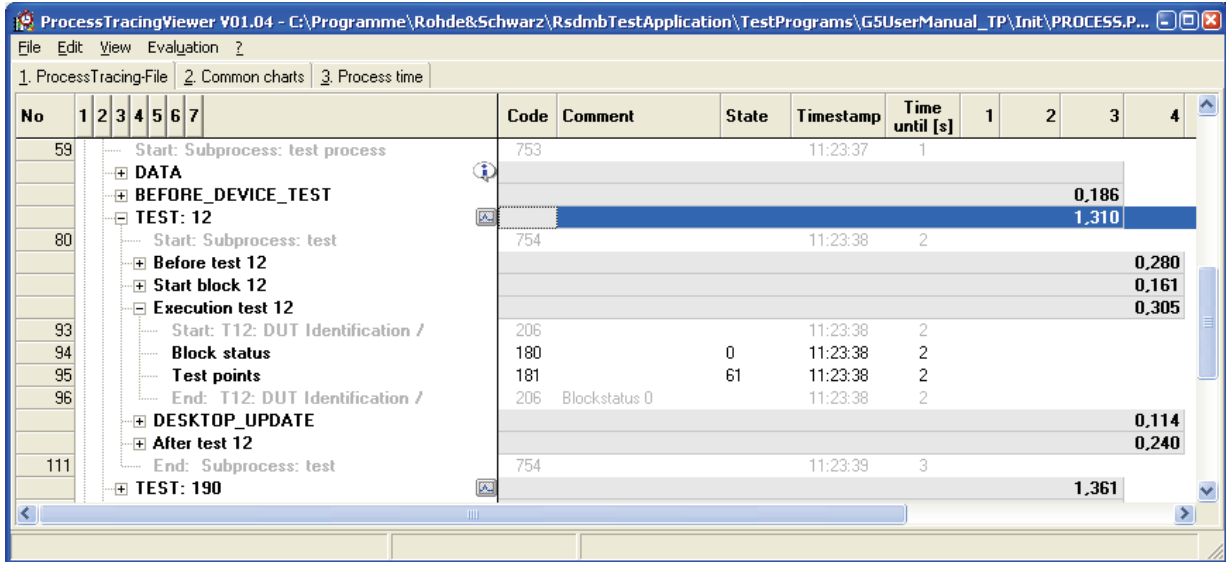
- ▶ Use the windows start menu



- ▶ or the **Equipment Editor** command of the menu bar to open the tool.

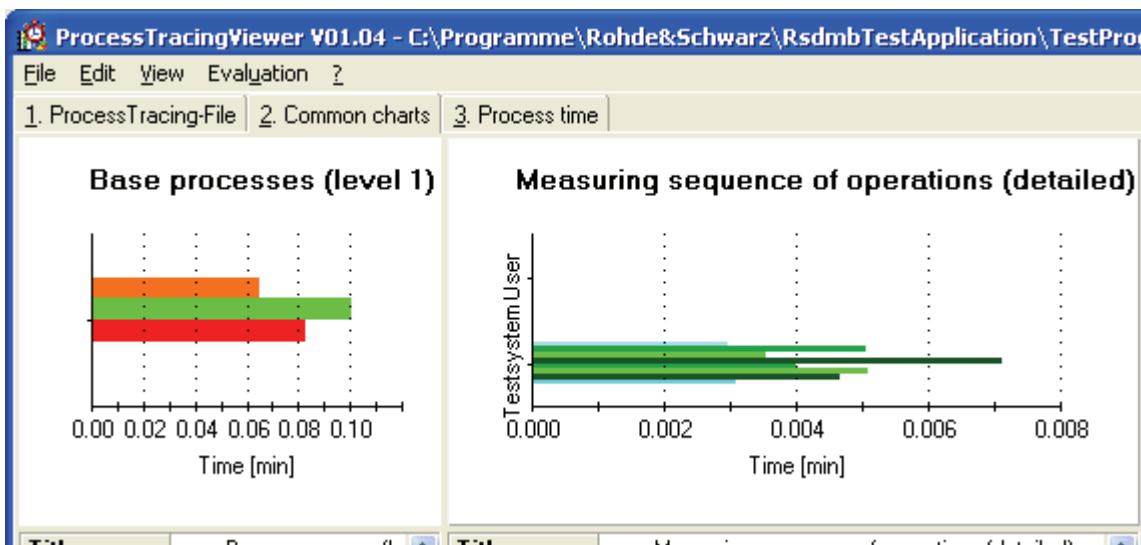


Process Tracing Viewer



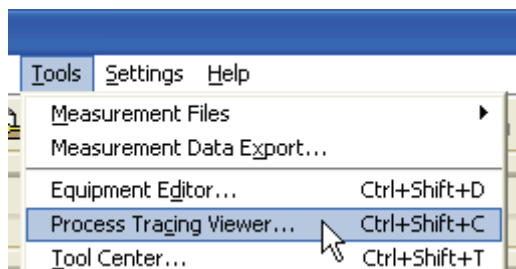
The *Process Tracing Viewer* is used to visualize the process tracing information. This information is generated when the [Process Tracing](#) [p. 3.124] is activated.

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.

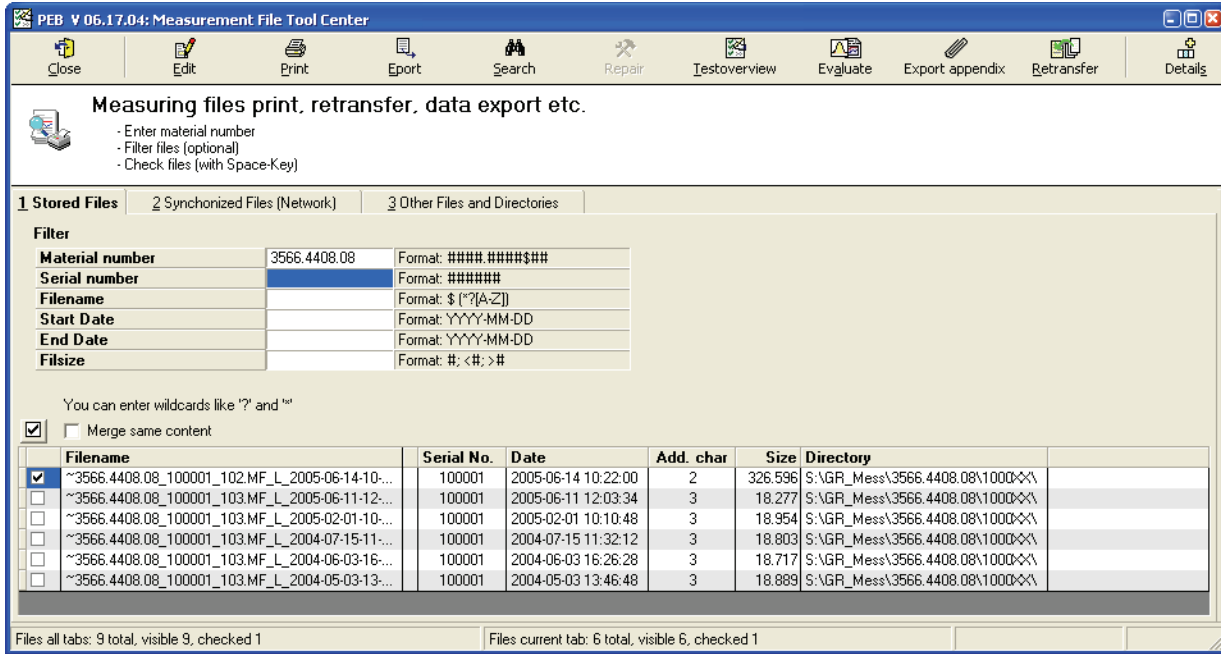


Additionally, the *Process Tracing Viewer* provides several charts to analyse and export the time flow for various aspects. The look and feel of the charts, e.g. orientation, colours and labelling, can be adjusted to your own imagination.

- ▶ Use the **Process Tracing Viewer** command of the menu bar to visualize the current process tracing information.



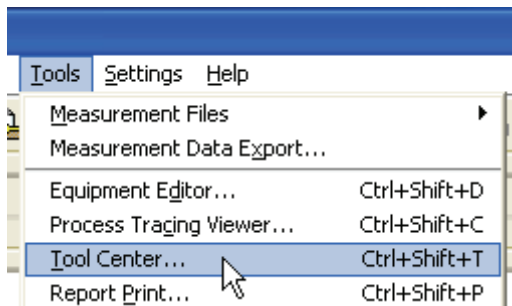
Tool Center



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 [Transfer of Measurement Files](#) [p. 2.98]), export, do statistic evaluations, etc. of the selected measurement files.

For further information see the *Tool Center's* help.

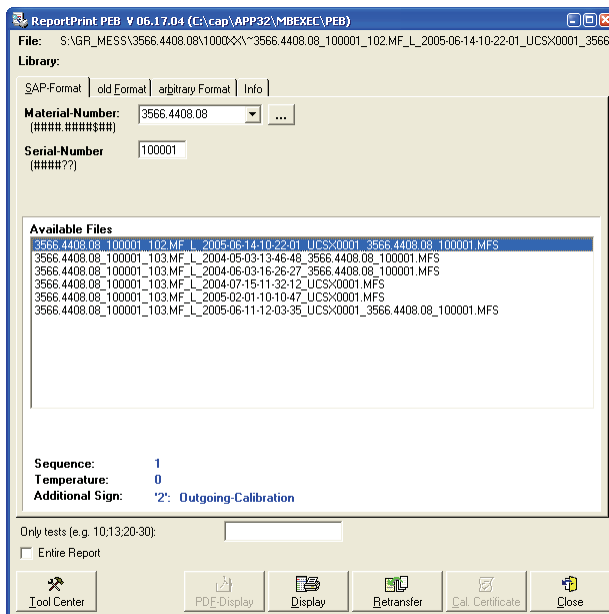
- ▶ Use the **Tool Center** command of the menu bar to start the tool.



Note: On default the **Tool Center** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.

Note: 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.

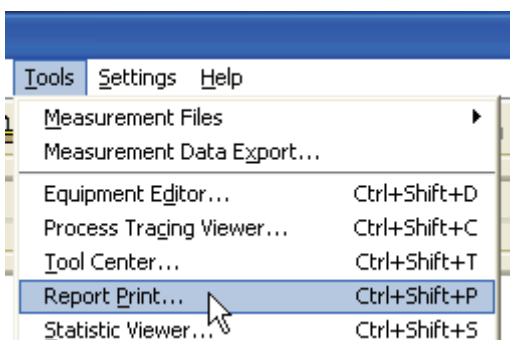
Report Print



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 [Transfer of Measurement Files](#) [p. 2.98]). Additionally, measurement files can be retransferred.

For further information see the *Print Report*'s help

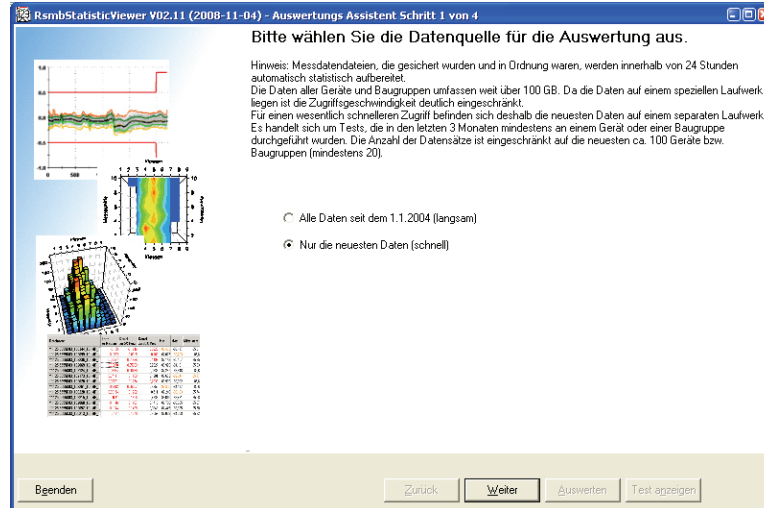
- ▶ Use the **Print Report** command of the menu bar to start the tool.



Note: On default the **Print Report** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.

Note: 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.

Statistic Viewer

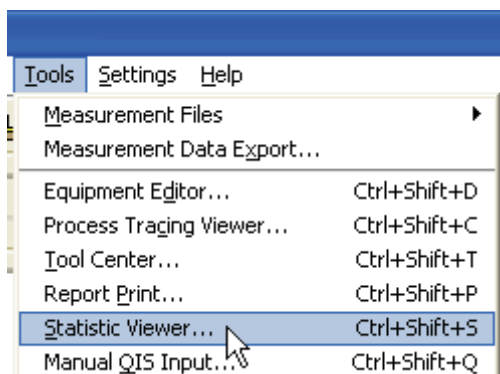



 **Note:** At the moment, the *Statistic Viewer* is only available in German.


All measurement files, which are transferred (see [Transfer of Measurement Files](#) [p. 2.98]) 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.

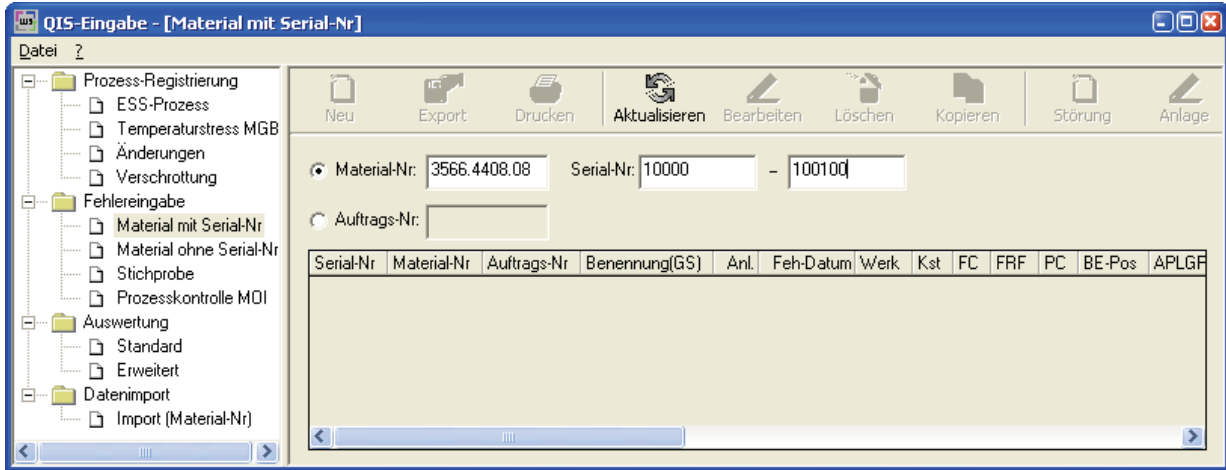
- ▶ Use the **Statistic Viewer** command of the menu bar to start the tool.




 **Note:** On default the **Statistic Viewer** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.

 **Note:** 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 **Menukarte**. Hence, in order to use the *Statistic Viewer* the **Menukarte** must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

Manual QIS Input

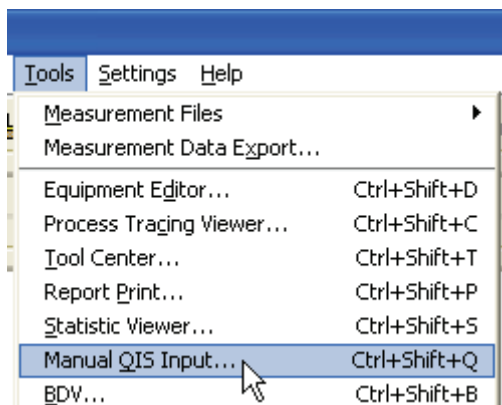



 **Note:** At the moment, the *Manual QIS Input* is only available in German.


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.

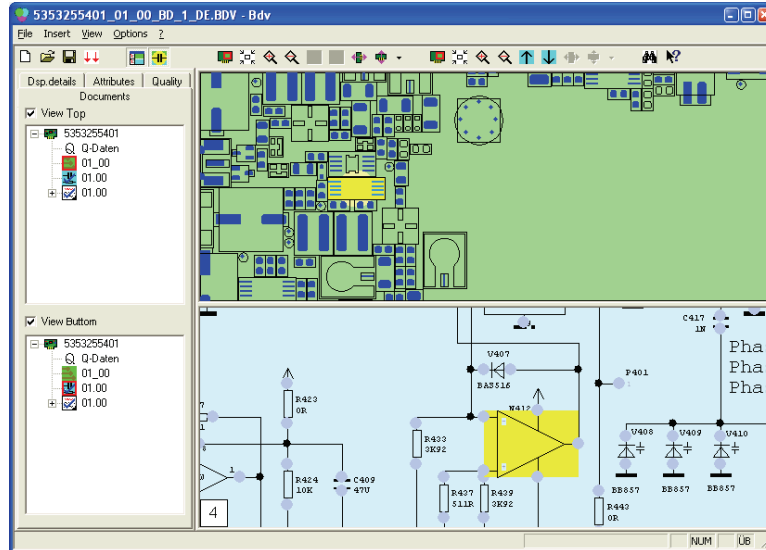
- ▶ Use the **Manual QIS Input** command of the menu bar to start the tool.



 **Note:** On default the **Manual QIS Input** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.

 **Note:** 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.

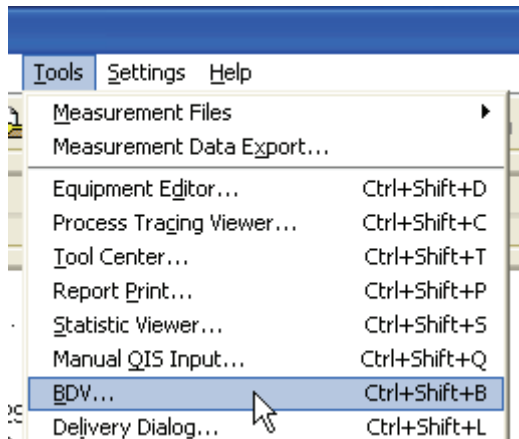
BDV (Board Data Viewer)



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.

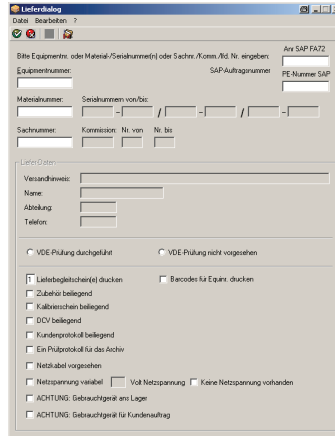


Note: On default the ***BDV*** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.



Note: 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.

Delivery Dialog

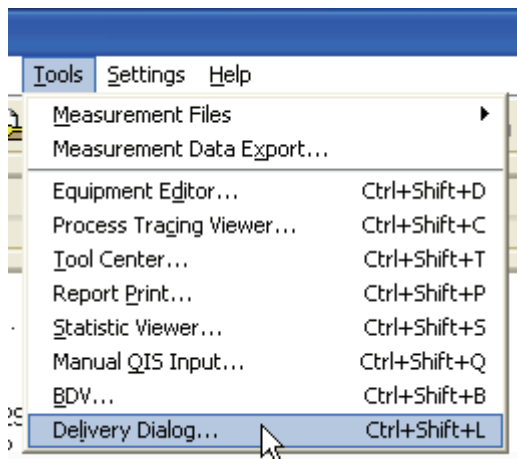



 **Note:** At the moment, the *Delivery Dialog* is only available in German.


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.



 **Note:** On default the **Delivery Dialog** command is not visible in the menu bar. Use the configuration tool [Tweak TM G5](#) [p. 6.150] (Folder: *Menu Card Tools*) to configure the *Tools* menu.

 **Note:** 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 **Menukarte**. Hence, in order to use the *Delivery Dialog* the **Menukarte** must be available on your PC. Ask your system administrator for the further information concerning access authorization and infrastructure.

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.

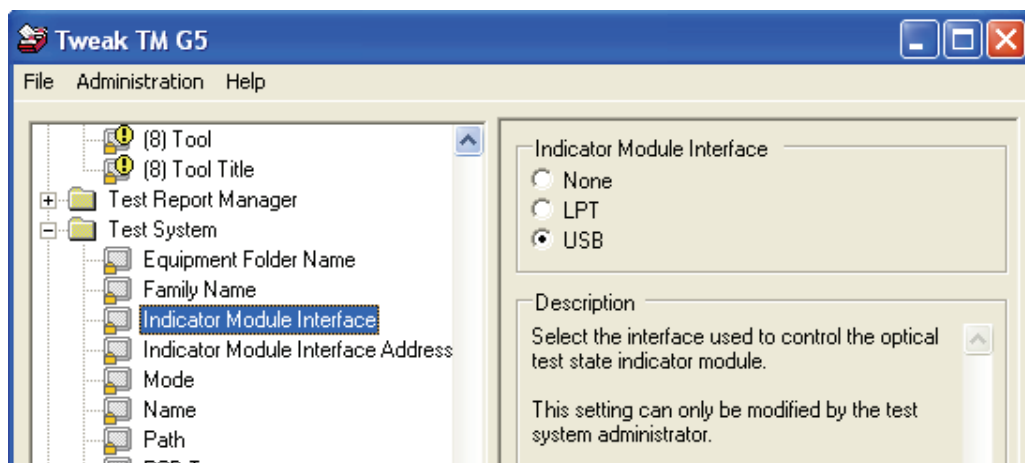
green	orange	red	Description
off	off	off	The test application is idle or down.
on	off	off	A test is running.
off	off	on	User interaction is required.
on	off	on	A temporary message is displayed.
off	on	off	A least one test point of the previous executed test or test sequence is out of tolerance.
on	on	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 Working with Breakpoints [p. 3.106]).
on	on	on	reserved



Note
:

The Test Application State Indicator must be order separately.

 **Note** : The Test Application configuration tool [Tweak TM G5](#) [p. 6.150] has to be used to activate the state indication.



7 Service Support

Trouble with Hardware or Software



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.

The screenshot shows the web interface of the 'World Wide ACS & Service Support Database'. The page has a blue header with the 'ROHDE & SCHWARZ' logo on the left and the title 'World Wide ACS & Service Support Database' in the center. To the right of the title are 'Home' and 'GLORIS' buttons. A left sidebar contains navigation links: 'News', 'Change Password', 'Feedback', 'LDSHOW', 'File Transfer', 'ACS Discussion Forum', and 'ACS Hints'. The main content area features a central graphic of a globe with a pyramid and a globe, surrounded by a grid of numbers. To the right of the graphic, the text reads: 'Support for T&M core products', 'List of supported instruments will be increased continuously. For not listed equipment, please use e-mail directly.', and a copyright notice: '(c) 2002, 2005 by Peter Kaps, 5SMB / Alexander Knie, 601PO Rohde & Schwarz, Munich'.

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8 Appendix

Glossary

Customer Test Report	Test Report containing all Tests provided for the customer.
Device Test	Entirety of Tests required to determine the presence, quality, or truth of all DUT properties.
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.
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 .

Abbreviations

DUT	Device Under Test; both instrument and printed circuit board
GUI	Graphical User Interface
ISO	International Organization for Standardization
POP	Product Online Profile
QIS	Quality Information System
TM G5	Test Management Software (Generation 5)
TP	Test Program
UGB	Uncertainty Guard Band

Shortcuts

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⁾
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

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

Document History

Document Version	Hint	Link
E-01.14	The shown states in the Current State column have been changed.	Device Summary Tab [p. 2.27]

Document Version	Hint	Link
E-01.13	Test state icon "Adjust" has been added.	Test State Icons [p. 2.25]
	Columns have been added to the Test Overview Tab.	Test Overview Tab [p.2 74]
	Additional test overview settings have been added.	Further Settings [p. 4.142]

Document Version	Hint	Link
E-01.12	Desktop Menu (Edit, Tools, Settings) has been revised.	Menu Overview [p. 2.17]
	Smart Desktop description has been added.	Using the Smart Desktop [p. 3 133]
	Automatic QIS entry generation has been added.	Generating QIS entries automatically [p. 3.135]
	Description of the Configuration Database Editor's options has been added.	Configuration Database Editor Options [p. 4.147]

Document Version	Hint	Link
E-01.11	TM G5 activation has been replaced by the Licensing mechanism.	Licensing the TM G5 [p. 2.12]
	Device Summary Tab has been enhanced.	Device Summary Tab [p. 2.27]
	Export item has been added to the Interrupt Panel's context menu.	Additional Interrupt Panel Controls [p. 2.32]
	Test Adapter Modification Index dialog has been added.	Test Adapter Modification Index [p. 2.38]
	State Indicator Panel has been added	State Indicator Panel [p. 3.126]
	New Option has been added to the Test Process dialog.	Automatic Test and Test Configuration Data Input [p. 3.119]

Document Version	Hint	Link
E-01.10	Predefined additional Test Marks added	Test Mark Description [p. 3.105]
	Test System Modes added	Test System Mode [p. 3.127]
	Automatic measurement file transfer settings added	Transfer Settings [p. 2.99]
	Common Test Report Manager settings added	Further Settings [p. 4.142]
	Equipment Editor description added	Equipment Editor [p. 6.152]
	Process Tracing Viewer description added	Process Tracing Viewer [p. 6.153]
	Measurement Window description added	Measurement Window [p. 2.89]
	Several screenshots have been updated	

Document Version	Hint	Link
E-01.09	Description of the predefined additional Test Marks added	Test Mark Description [p. 3.105]
	Option of the Multiple Device Testing Mode added	Endless Option [p. 3.111]

Document Version	Hint	Link
E-01.08	Grouping of tests in the Test Report Window	Viewing the Test Overview [p. 2.57], Repeating Tests by using the Test Overview [p. 2.59]
	Test Report Manager toolbar has been modified	Creating a PDF Output [p.2.81], Using additional Test Report Printout Modes [p. 2.83] and Further Settings [p. 3.142]

Document Version	Hint	Link
E-01.07	The item Save Copy As has been added	Save [p. 2.47]
	Several screenshots have been updated	

Document Version	Hint	Link
E-01.06	Service support address has been changed	Service Support [p. 7.163]
	Activation dialog has been changed	Activating the TM G5 [p. 6.148]
	Test Application State Indicator description has been added	Test Application State Indicator [p. 6.161]

Document Version	Hint	Link
E-01.05	Activation: Warning has been added	Activating the TM G5 [p. 5.148]
	Test Sequence Tab: Skip icon added	Test Sequences Tab [p 2.24]
	Test Info Tab: Skip icon added	Test Info Tab [p 2.26]
	Visibility of the category Single Test	Test Sequences Tab [p 2.24] and User defined Test Sequences [p 2.45]
	Update of the TM G5 block diagram	Introduction [p. 2.9]

Document Version	Hint	Link
E-01.04	Interrupt Panel: User Note commands added	Additional Interrupt Panel Controls [p. 2.32]

Document Version	Hint	Link
E-01.03	Chapter of TM G5 activation added	Activating the TM G5 [p. 5.148]