Simulation Software: SIVAT

SIVAT

NRC Audit
June 8-10, 2010
Alpharetta, GA

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SIVAT

SImulation based VAlidation Tool

SIVAT start window
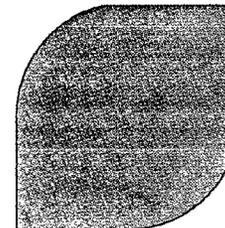
Code-generation window

Simulator control window

SIVAT Simulation
Starting the Simulator

User Interface

Of the Simulator

➤ **Starting the Simulator**

Simulation is started by clicking the **Simulation** button in the welcome mask

Two windows are displayed:

The user interface of the simulator

A shell window that contains the command prompt of the simulator

The welcome mask is closed.
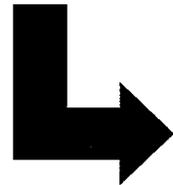
Shell window with an input prompt

The Simulator User Interface Control

➤ **Load Script with "Choose"**

⬥ Selection of a script with file-select dialogue from the directory
$TXS_PROJECT/<db>/sivat/<user>/protocol/script

⬥ Script name is displayed in the mask

➤ **Run Script**

⬥ Starting of the selected script.

➤ **Edit Script**

⬥ You can modify the script in an editor and save it

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The Simulator User Interface
Dynamic FDE
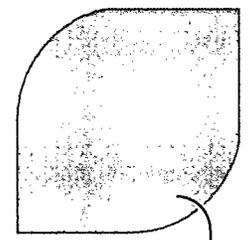
Upon opening the chosen FD's within the menu:

1. Select -> Signal Connections
2. Actions -> Watch
3. Actions -> Show Online Data

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Working with scripts
Overview

Requirements

SDD

Test case 1
Test case 2
Test case 3

Test specification

Test case 1

Test case 2

Test case 3

Test scripts (Procedure)

SIVAT Simulator

Test of limitation value and hysterese

example SIVAT plot (read-signal)   2001-02-20 / ju / training2.dat

FB_4_BDA69CE811__XQ11.v

FB_4_BDA69CE811__XE04.v

Result files/plots

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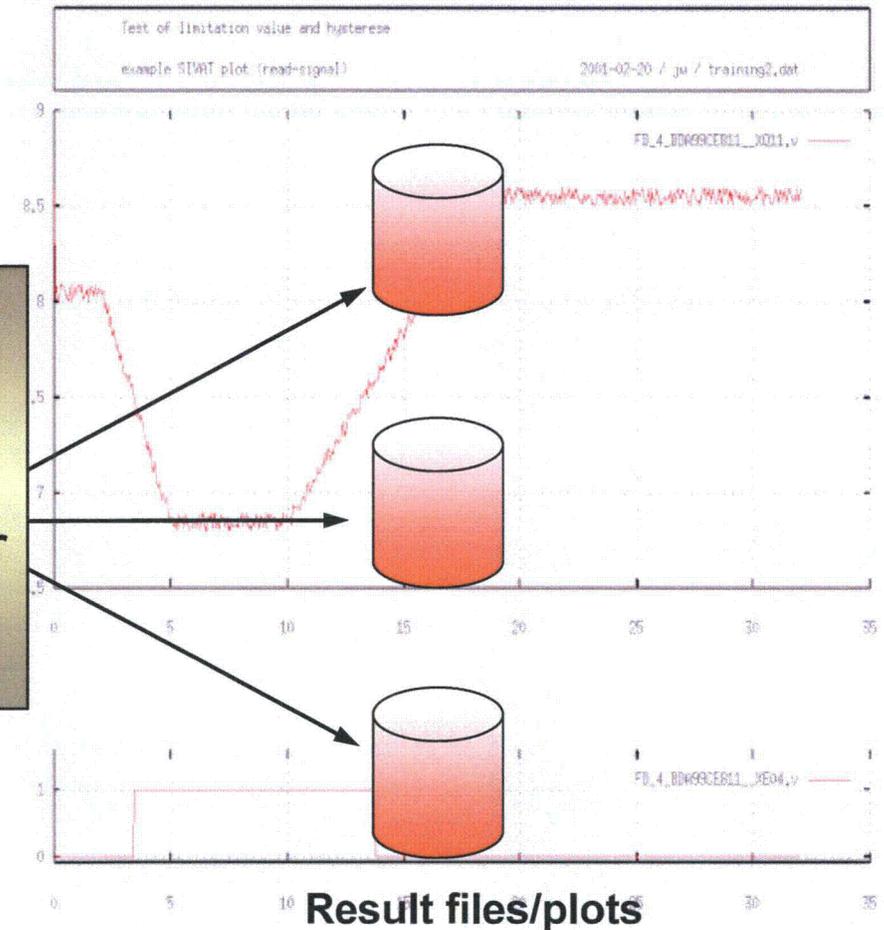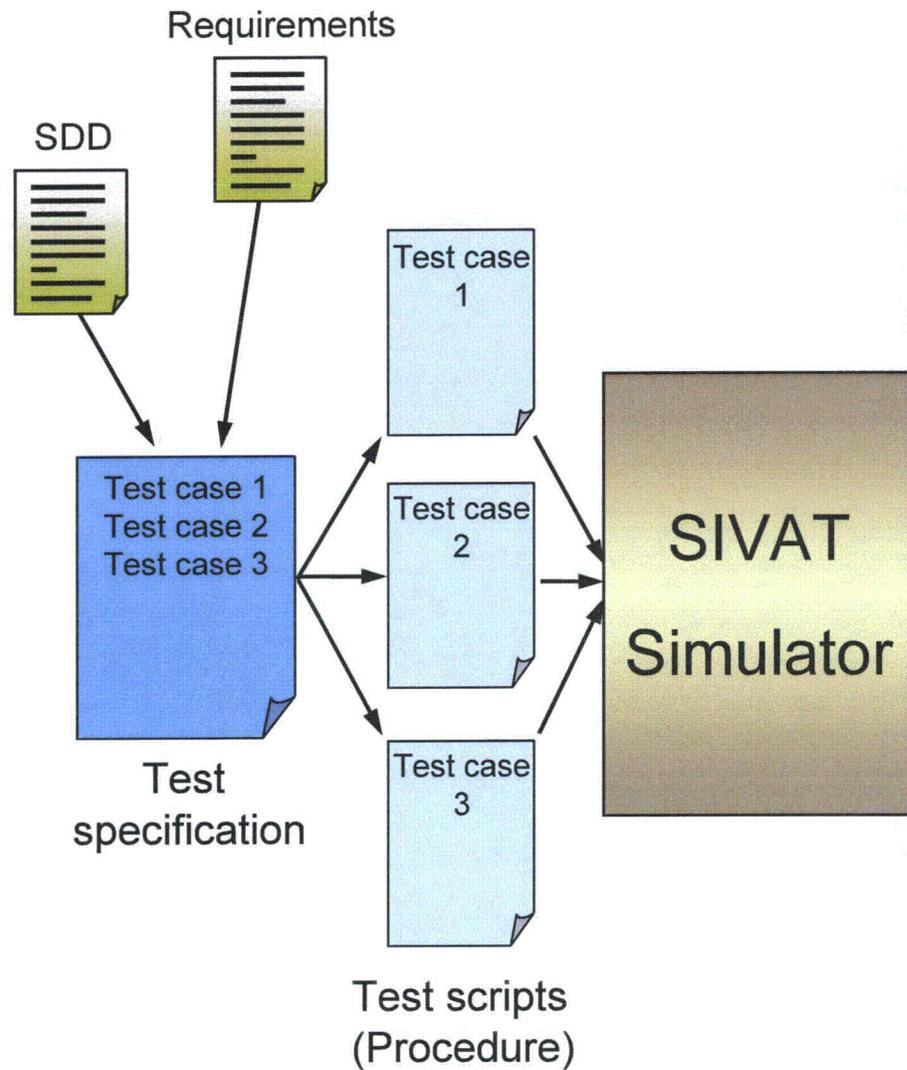
Working with scripts
Simulation
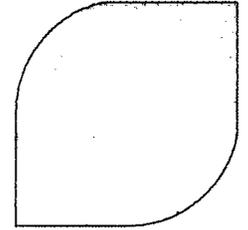
➤ **Assigning Values to signals, parameters, and function block memories**

➤ **Most important commands for use in scripts**

Working with scripts and specification steps (SI-0103-A)
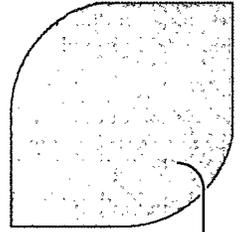
Example: Testing Test Object SI-0103-A

Case 1 – Test of RC Hot Leg Temperature in Channel A - Normal Range

Expected Results

Example: Testing Test Object SI-0103-A
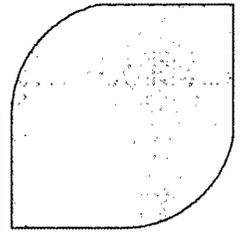
Set to normal operating values 600 F

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Example: Testing Test Object SI-0103-A

Case 1 Step #2:

Expected Results

Example: Testing Test Object SI-0103-A
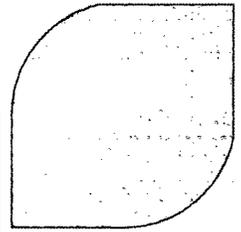
> **Ramp the signal from 600 F to 620 F**

Example: Testing Test Object SI-0103-A

The signal is recognized as deviated from other channels

# Example: Testing Test Object SI-0103-A
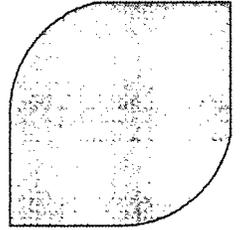
Channel A statalarm is lit

Example: Testing Test Object SI-0103-A

Case 1 Step #3:

Expected Results

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Example: Testing Test Object SI-0103-A
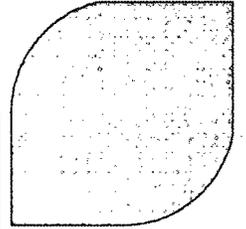
Ramp the signal from 620 F to 520 F

Example: Testing Test Object SI-0103-A

The signal is recognized as deviated from other channels

Example: Testing Test Object SI-0103-A
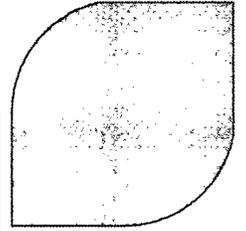
Channel A statalarm is lit

Example: Testing Test Object SI-0103-A

Case 1 Step #4:

Expected Results

Example: Testing Test Object SI-0103-A
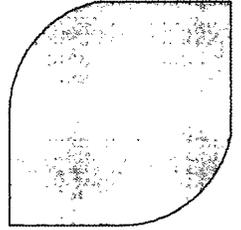
Ramp the signal from 520 F to 600 F

The Simulator User Interface
Plot

➢ **Task**

◇ Data which has been written by
   a test script using the plot
   command may therefore be
   directly used as output.

◇ The program offers a wide range
   of configuration options which
   may be saved specifically for
   each user.

◇ Note:
   The print will always be performed by the default
   printer of the Linux-System.
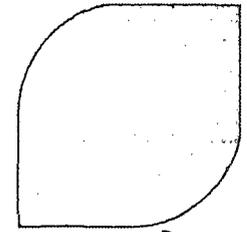
# The Simulator User Interface
Plot
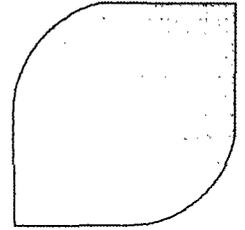
Starting the
GNU Plot Center

The Simulator User Interface Plot
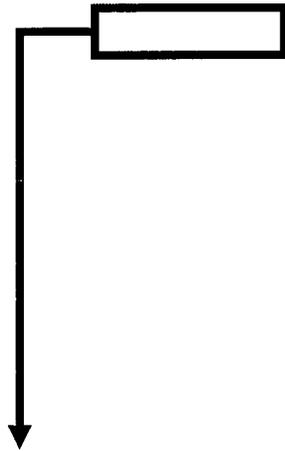
All signals from the data file will be loaded

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The Simulator User Interface
Plot

Defining a diagram header

Adding variables

Automatic scale or Individual scale

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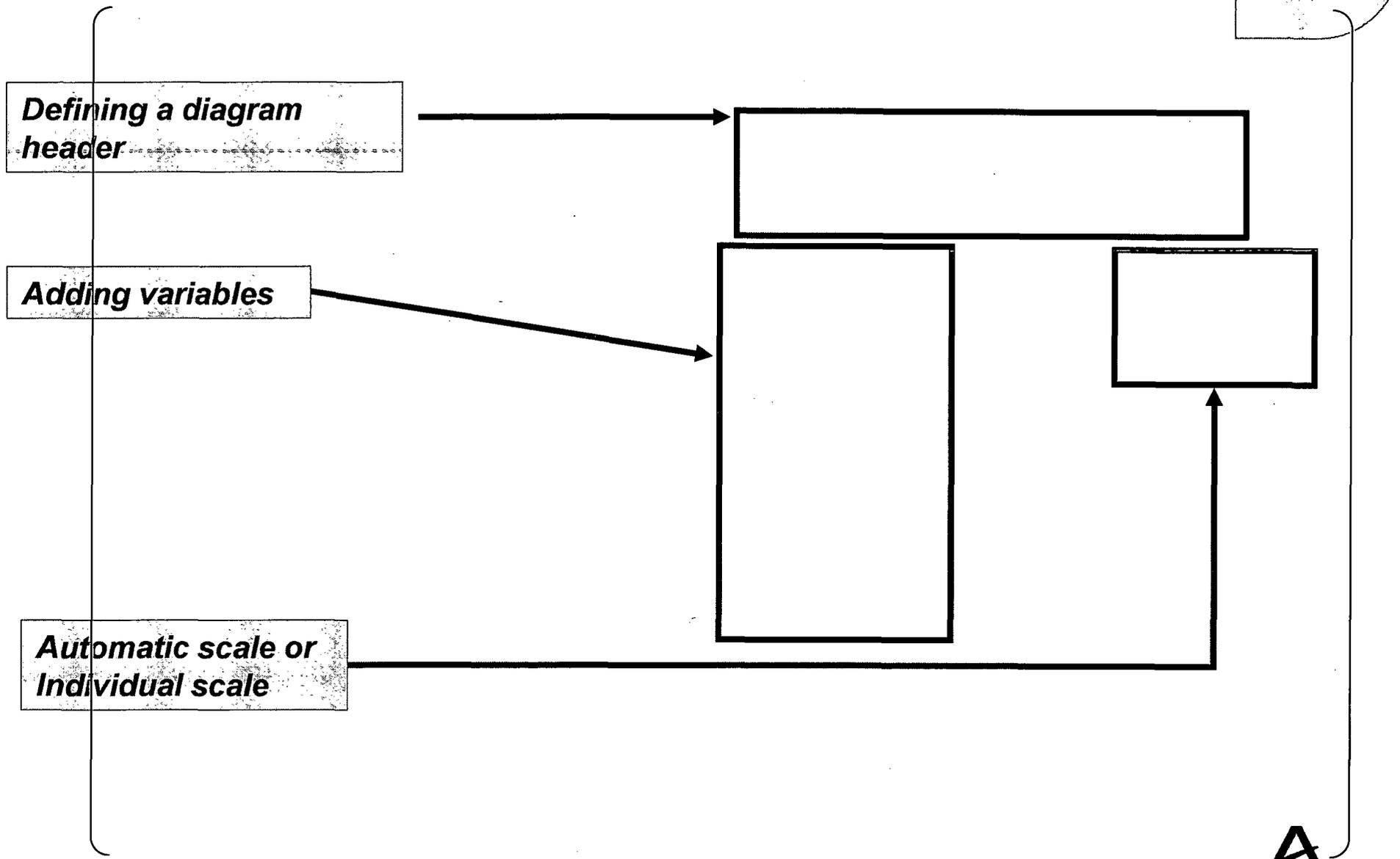
The Simulator User Interface Plot
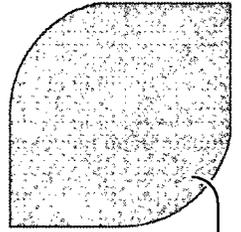
Selection of signals
from the data file. For
plotting the diagrams

Example: Testing Test Object SI-0103-A Plot

Ramp signal from 600 F to 620 F
From 620 F to 520 F
From 520 F t0 600 F

Temperature Signal

Internal Deviation Signal

Deviation Signal to Gateway

**Trouble Alarm Signal**

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Example: Testing Test Object SI-0103-A Plot File
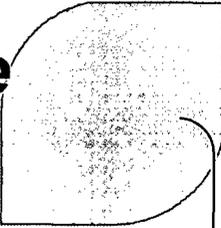
Ramp signal from 600 F to 620 F

Ramp signal from 620 F to 520 F

Example: Testing Test Object SI-0103-A
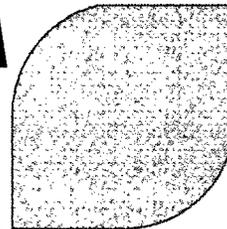
Expected Results

Example: Testing Test Object SI-0103-A
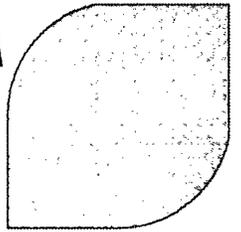
Set signal from 600 F to 1150 F

Example: Testing Test Object SI-0103-A

Expected Results

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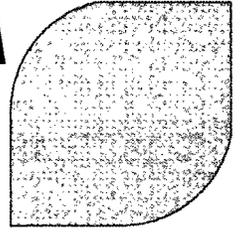
Example: Testing Test Object SI-0103-A
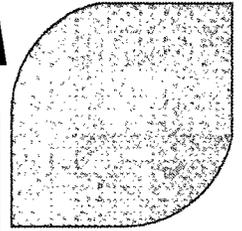
Ramp signal from 1150 F to 1201 F

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Example: Testing Test Object SI-0103-A

The signal is recognized as
Faulted from other channels

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THE END