

Production Test

Combinational tests
for telephone terminal equipment

TEST & MEASUREMENT

Your task

You need a flexible test system for testing telephone terminal equipment. The system is to provide a full electrical test of the equipment, an acoustic test of the loudspeaker and the microphone and an automatic test of the keypad and the display. Compliance with the relevant telecommunications

directives for terminal equipment must be ensured. The test system should be of modular design, so that it can be adapted to various types of handsets (telephone receivers) easily and cost-effectively.

T & M solution



The Open Test Platform R&S®CompactTSVP provides the ideal solution for this task. Based on industrial standards, the R&S®CompactTSVP can be expanded by measurement, stimulus and switching modules from Rohde & Schwarz or by other standard modules, depending on the application. To perform this application, the system has been extended by an international feeding bridge and a tone call/signal generator including DTMF functionality. Using a fixture with suitable inserts, you can test the lower part of the terminal with the loudspeaker and the upper part with the keypad, display and electronics sections as well as the various types of handsets.

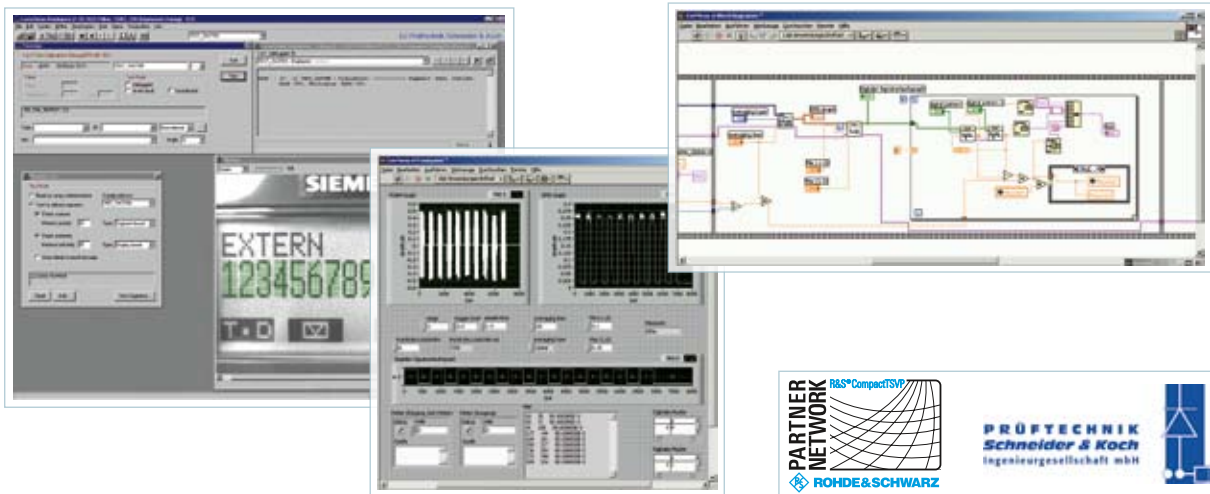


To test the acoustic characteristics of the loudspeaker, a DUT-specific artificial ear has been implemented for use with the test platform. By screening out undesired ambient light and using controllable light sources at the same time, the camera can optimally pick up the DUT display and surface. The telephone keypad is operated by means of electrically controlled pneumatic actuators that simulate the operation of human fingers.

Application

The measurement and stimulus signals are switched via the internal analog measurement bus of the R&S® CompactTSVP base unit and the Rohde & Schwarz switching modules. Already in its basic configuration, the test platform performs all electrical tests stipulated for analog terminal equipment by the ETSI-TBR 21 and ETSI-TBR 38 telecommunications directives. Due to its modular design and flexible software concept, the test platform can be easily adapted to handle ISDN or other terminal equipment. In circuit test (ICT) functionality can also be integrated if required. Test sequence control is performed by the TestStand

Sequencer from National Instruments. The test programs have been created by means of LabView from National Instruments using ported R&S® GTSL drivers. Display tests are carried out using the LV Display software package from Schneider & Koch. The application is configured using a sequence of special test step modules. With these modules, you can program the individual tests required for the application in accordance with the ETSI specifications. Programming via these modules covers all input conditions and interconnections relevant to the individual tests as well as the required measurements and analyses.



Technical information

Product designation	Open Test Platform R&S® CompactTSVP
System components (basic configuration)	<ul style="list-style-type: none"> • Test and Measurement Chassis R&S® TS-PCA3 based on CompactPCI/PXI with System Controller R&S® TS-PSCx • Analog Source and Measurement Module R&S® TS-PSAM • Arbitrary Waveform and Function Generator Module R&S® TS-PFG • Switching Matrix Module R&S® TS-PMB • Power Switching Module R&S® TS-PSM1 • CompactPCI-based image processing module • CompactPCI-based digital I/O board
Operating system	Windows 2000, Windows XP or later
Software	<ul style="list-style-type: none"> • R&S® GTSL (Generic Test Software Library) ported to LabView by Schneider & Koch • S & K LV Display • National Instruments TestStand Sequencer



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