

2) AUTOMATION OF RECURRENT TEST

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THE PROBLEM

Modern industrial plants, such as Power Plants (Nuclear and Fossil fired), Chemical Enterprises etc., are high-class investment goods.

Today the following target functions for construction and operation of such plants are:

- Safety
- Efficiency
- Availability
- Personnel employment
- Environmental protection.

Complex plants expect special requirements for safety of components and control modules.

Regular or Recurrent Tests (RT) are very effective to positively influence at complex industrial plants of different types the mentioned above target functions.

In the operational practice Recurrent Tests are performed with a high percentage of manual operations. The proof against the regulatory body as well as later analysis entails manual or over manual intermediate steps.

Reasons for possible obstacles in reaching the target functions are:

- High time and organisation expenditures
- Insufficient clearness
- Possible human maloperations.

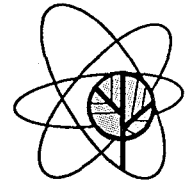
THE TECHNICAL SOLUTION

With the help of a computer based, partially automated methods for the Recurrent Tests technical and human maloperations, which significantly affect the previously mentioned factors, can be reduced.

The technical solution comprises three main parts:

- Universally usable and mobile testing equipment with
 - Precision measurement system (digital multimeter)
 - A/D-, D/A-Transformers
 - Reverses (multiplexes)
 - Test computer (personal computer), printer
- Modular program package with
 - Self test program
 - Test programs for the actual plant parts or separate components
- Database for test results

For test performance, the mobile test system on the test site will be connected to the power supply system.



Taking into account safety reasons the computers will be booted by an exchangeable disk with the testing program of the current module. From this point the user will be guided by a clearly arranged and ergonomic interface, which catch all possible maloperations.

The most important testing steps are:

- Signal input to the electrical circuit or component to be tested
- Measuring of output signals
- Actual value comparison
- Determination of deviations
- Evaluation of results
- Data storing on exchangeable disk.

USERS BENEFIT

Using this computer aided procedure for the Recurrent Tests you can

- effectively eliminate the obstacles in achieving the mentioned above target functions,
- improve the test quality,
- usefully enlarge the scope and content of the tests.

PRACTICAL EXPERIENCE

The system is used in German NPP for many years. The experience shows the high availability and efficiency of the system itself.

Some economical data which underline these facts will be given.