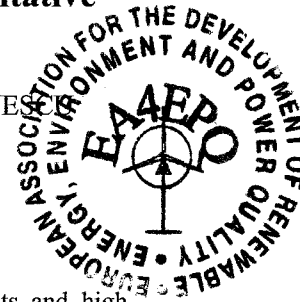


Modernisation of High Power Laboratory to fulfill the technical and qualitative conditions for tests according to standards in force



Eng. George CURCANU, Eng. Corneliu CHICIU, Eng. Constantin ILINCA, Eng. Horia IONESCU
 R&D National Institute ICMET-Craiova, 118A Decebal Blvd, 200746 Craiova, Romania
 phone: +40351 402427; +40351 404 888; +40351 404 889
 fax: +40351 404 890; +40251 415 482
<http://www.icmet.ro>, email: LMP@icmet.ro



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Abstract: High Power Laboratory was modernised by using new electrical apparatus and equipment in order to limit the perturbations due to environment and electromagnetic fields for qualitative improvement of tests performed at high currents and high voltages, according to standards in force. There are also presented the methods for limiting these effects within electric tests laboratories.

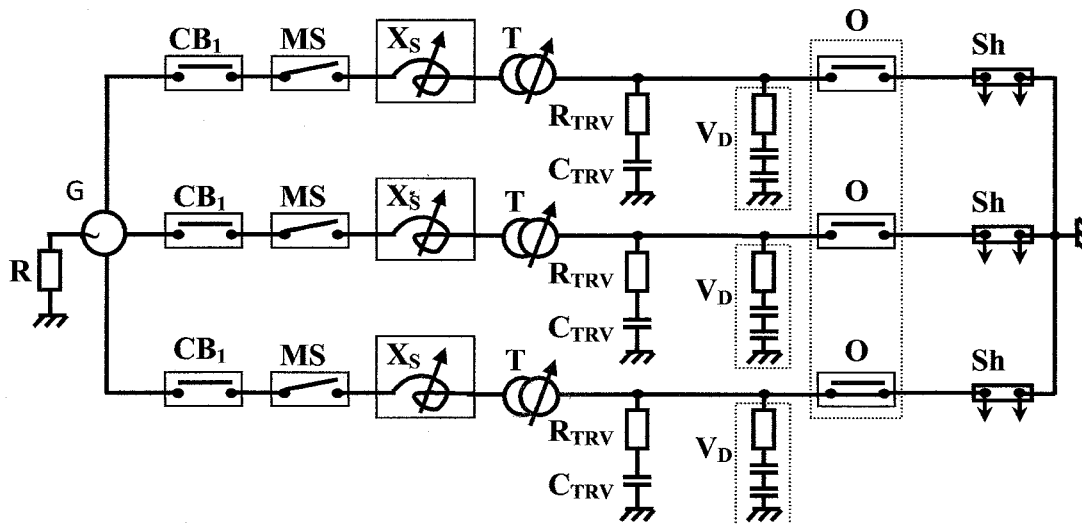
Due to very strong stresses at high currents and high voltages, arises the problem of achieving such testing and measuring circuits which must contain environment-friendly materials and, on the other part, not to be affected by very intense electric and magnetic fields [1]. Thus, at initiation of high short-circuit currents and also at tests accompanied by high electric fields in secondary circuits, are induced currents and voltages which can affect the results of measurements if avoiding measures are not taken.

1. Introduction

High Power Laboratory is designed for type tests of electric apparatus and equipment at high currents according to standards in vigour. Testing diagram uses electric circuits made from motor-generator groups, medium voltage circuit-breakers and switchgears, making switches, motors, power transformers, busbars, capacitors, resistors, measure transducers (shunts, current transformers, voltage dividers). [1,2,4]

2. Particularities regarding testing and measuring circuit

Testing circuit from High Power Laboratory of ICMET Craiova uses a direct scheme. [2,3,4] As resulting from standards requirements (Figure 1), main testing and measuring circuits were modernised with new apparatus, equipment, measuring and recording devices which avoid negative effects on environment and those of electromagnetic fields on staff. [3,4]



G - Source voltage
 CB₁ - Auxiliary breaker
 MS - Make switch
 X_S - Reactances
 R - Resistance

R_{TRV}, C_{TRV} - TRV components
 V_D - Voltage divider
 T - Power transformer
 Sh - Shunt
 O - Tested apparatus

Figure 1 - Test circuit diagram