

MEASUREMENT OF EXPOSURE TO LOW FREQUENCY ELECTROMAGNETIC FIELDS NEAR HIGH VOLTAGE POWER INSTALLATIONS - EXCEM

Goal of the project

The main goal of this project is to obtain information on the actual values of the intensity of the electrical component and the induction of the magnetic component, related to the low frequency electromagnetic fields (1-300Hz, including harmonics) in the vicinity of medium or high voltage installations or equipment, in order to mitigate their effects. on human personnel or environment.

Short description of the project

Measurements are made in stations, near transformers, switches or other MV/HV equipment or lines.

Implementation period

01.02.2020 - 31.07.2020

Budget

47.600 RON (10000 EUR)

Main activities

- Main research activities are:
 - Purchase of measuring equipment and software.
 - 1. Establish, together with the Plant Owner, the specific measurement procedures.
 - 2. Performing field measurements.
 - 3. Carrying out measurements in transformer stations and stations.
 - 4. Making measurements on power lines.
 - 5. Statistical processing of results.
 - 6. Drawing up conclusions and recommendations.
 - 7. Dissemination of research results.

The measurements concern the intensity of the electric field (kV / m) as well as the magnetic induction (T), carried out in accordance with Directive 2014/30/EU and other specific regulations.

Results

- According to a partnership with the National Power Grid Operator, Transelectrica most of our measuring activities were performed at the Fantanele, Iernut and Sibiu Sud Power Stations, belonging to the Sibiu Branch, as well as at some Timisoara Branch stations, around bus-bars, transformers, autotransformers, switchers, surge arresters, circuit breakers, at temperatures between 15 and 25 degrees Celsius, both for the Electric Field Intensity and Magnetic Field Induction.

- We can consider that all the recorded values are placed under the maximum 10 kV/m (1 mT) admissible level for permanent human exposure. or smaller than the maximum 20kV/m (3 mT) short time exposure limit. By taking in consideration all these facts, a lot of additional safety measures are not required or mandatory

Applicability and transferability of the results:

- The purpose of these measurements is an informal one, giving a real and objective image (by involving impartial academic staff), about the existing values. All data resulted from this project will be communicated exclusively to the owner of the objective generating MV/HV electromagnetic fields (ex. Transelectrica), together with a set of conclusions and recommendations of an informal character.

Research team

Assist. Dr. Mihaela FRIGURA-ILIASA
Assist. Dr. Felicia Ioana BALOI
Assist. Dr. Adrian Flavius OLARIU
PhD. Stud. Razvan Claudiu PETRENCI

Contact information

Assist. Prof. Mihaela FRIGURA-ILIASA, PhD
Faculty of Electrical and Power Engineering
Power Systems Department
2, V. Parvan Bvd., Timisoara 300223
Phone: (+40) 256 403415
Mobile: (+40) 744 631989
E-mail: mihaela.frigura@upt.ro