

SYSTEM FOR THE CONSTRUCTION OR MODIFICATION OF A METER WITH CAPABILITY TO ANALYZE THE EMISSION SOURCE VARIABILITY

Ideas on utilisation

The system for measuring distribution of electromagnetic field (EMF) allows to eliminate errors in determining the magnetic and electric fields resulting from voltage fluctuation and phase unbalance of a three-phase electroenergetic system. According to scheme attached below the system contains stationary measuring device (A), movable measuring device (B), coders (1A, 1B), transmission media (L_A, L_B), decoders (2A, 2B), registration device with on/off switch button (3) and multiplier (5), partitioning (4) and reading modules (6). The idea of the innovation is constant registration of the field intensity and its random variation during the measurement. The movable measuring instrument changes position and is used to measure the intensity of magnetic field at various points. Thus determined values of magnetic field are free of errors related to changes during measurements. The novel system allows for sending results using wireless network to an external measurement/registration devices by installing proper interface. The system can be adjusted with regards to purpose and methodology of electromagnetic field measurements against users' needs and requirements.

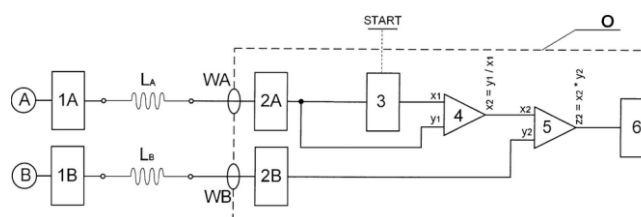


Figure 1. System for measuring distribution of electromagnetic field scheme.

The system was tested at in real conditions around an overhead power lines (110 kV/220kV/400kV) with satisfying results.



Potential adopters of technology

Technological offer describes system for measuring distribution of electromagnetic field (EMF) or other physical values variable in time with possibility to design a meter with capability to capture the emission source variability. The system allows to reduction of an error brought by fluctuations of voltage, current and/or deviation of the multiphase system. Basing on research results error can reach 30% up to 80% what can influence final evaluation. Thanks to the system described in the following offer there is a possibility to modify already existing meters by adding at least two probes as well as to use the system to perform accurate measurements of multiple physical values such as noise with no additional cost, comparing to traditional measuring methods. Potential negative EMF impact on the living organisms highlights the importance of measurements accuracy. The invention is filed under patent.

Advantages of technology

Due to progress of civilization and its inextricable connection with electricity infrastructure growth new demands are given to EMF devices and measurements methods. The offered system presents following advantages:

- accurate result thanks to two measuring devices with different positions
- possibility to obtained EMF results correction
- simple measurement methodology
- automation of the measurement process by a possibility to design and produce measuring device containing at least two probes (including probe responsible for emission source variability measurements). The meter would let to reduce the number of people taking the measurements and the operating time improving the accuracy at the same time,
- possibility to adjust the system according to users' needs and preferences
- possibility to transmit data using wireless network to reduce measurement and exposure time to EMF
- wide range of applications: the system can be used during current as well as noise measurements.

Market and context of technology

The electromagnetic field measurements are basic method for assessing the influence to its exposition. Nowadays, all populations are exposed to varying degrees of EMF, and its level will increase as technology advances. The system for measuring distribution of electromagnetic field can be used in EMF monitoring, especially in natural environment. The offer is addressed to EMF measurement devices manufacturers as well as to R&D facilities. The system can be useful for electric power engineering, EH&S or telecommunication industry, also to reduce errors during sound measurements.

Preconditions in adopting enterprises

Low implementation cost. The system enables integration with existing devices and systems.