Chaplin - High power transmission line cable inspection

The aim of Chaplin is to develop and demonstrate an integrated technology solution for the efficient and cost-effective inspection of high power overhead transmission line cables. There are many thousands of miles of high power line transmission cables dispersed around Europe, some of which are installed in remote areas with restricted and difficult accessibility. Furthermore, line cables operate in severe conditions. The cables are subject to environmental and operational factors such as moisture, voltage stress, vibration, overloads and structural imperfections.

Chaplin aims to develop an efficient and cost-effective inspection technology based on guided wave ultrasonic testing (UT) to identify the presence and the location of the defects in the cables (including areas where accessibility is an issue).

Project objective

Chaplin will develop a non-destructive testing (NDT) technique, integrated with other technologies, in order to provide an automated condition monitoring system to gather quantitative information about the presence of defects in high power transmission line cables. The proposed NDT technique for this project is long range ultrasonic testing. This technology will allow inspection of the full volumetric cross section area of a cable for many metres with a minimal number of points of access. NDT data as well as defect global positioning system information will be transmitted over wireless communications, linking to a data centre for analysis.

The system will be capable of being installed in inaccessible areas, where visual inspection cannot be conducted and the system will be able to harvest energy, by utilising the surrounding magnetic field to regenerate power, which will feed the condition monitoring system. This will lead to a self-powered condition monitoring system.

This project will have a significant positive impact on the power industry as it will enable the industry to perform just-in-time maintenance, reducing operation and maintenance costs, improving safety by reducing or eliminating helicopter line inspection and improve the quality of visual inspection practices commonly used today.

Ultimately, Chaplin will support the power companies towards a sustainable electricity supply to a vast number of customers in major industries, as well as households in cities.

For further information, please visit the project website at **www.chaplin-project.eu**

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HIGH POWERED TRANSMISSION LINE CABLE INSPECTION