

## Experimental and Theoretical Study of the Electric and Magnetic Fields Behavior in the Vicinity of High-Voltage Power Lines

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**Abstract :** This paper consists on an experimental and analytical characterization of the electromagnetic environment in the in the medium surrounding a circuit of two 220 Kv power lines running in parallel. The analysis presented in this paper is divided into two main parts. The first part concerns the experimental study of the behavior of the electric field and magnetic field generated by the selected double-circuit at ground level (0 m). While the second part simulate and calculate the fields profiles generated by the both lines at different levels above the ground, from (0 m) to the level close to the lines conductors (20 m above the ground) using the electrostatic and magneto-static modules of the COMSOL multi-physics software. The implications of the results are discussed and compared with the ICNIRP reference levels for occupational and non occupational exposures.

**Keywords :** HV power lines, low frequency electromagnetic fields, electromagnetic compatibility, inductive and capacitive coupling, standards

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