

FACE evaluates the overall environmental effects of high voltage AC, DC or AC/DC hybrid transmission lines.

Corona and field performance is an important consideration in the design and operation of high voltage transmission lines. FACE, developed by Manitoba Hydro International Ltd., provides faster solutions for determining the overall corona and field effects of high voltage AC, DC, or AC/DC hybrid transmission lines, such as:

- Corona loss
- Audible noise
- Radio interference
- Magnetic and static electric fields
- Ionized fields, ion charges, and ion currents

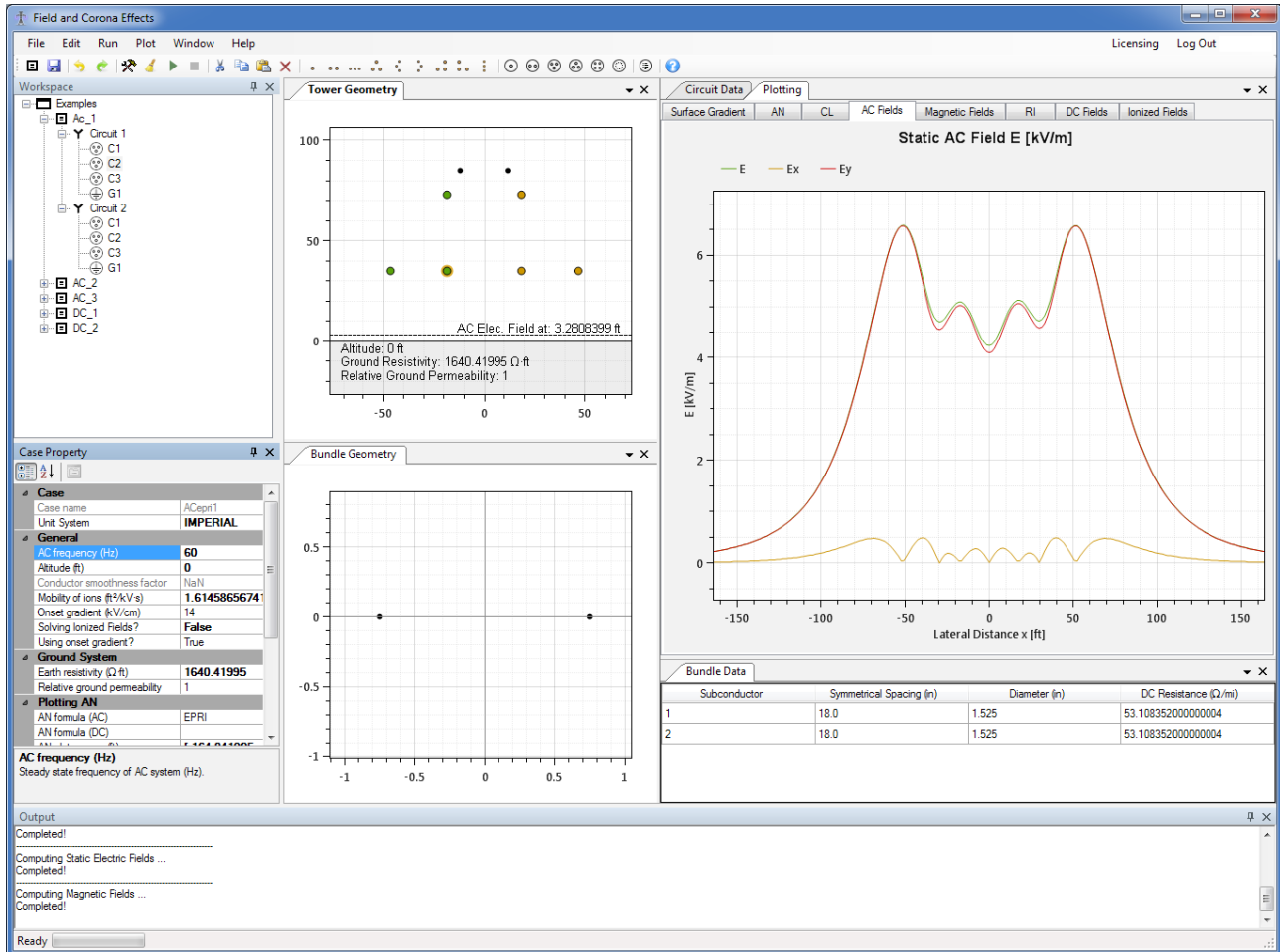
FACE calculates the audible noises and corona losses using empirical formulas developed by industry standards. It computes radio interferences with the semi-analytical method, where generating functions available in literature have been implemented as a user-selectable parameter. A frequency domain model analysis technique is utilized to rigorously examine the effects of transmission line geometrics.

The charge-free fields are calculated by the methods of successive images. Ionized fields at and above ground plane for DC, as well as AC/DC hybrid cases, are computed by implementing an algorithm for non-linear two-point initial value problems.



Features and benefits include:

- Analyze the fields and corona effects for AC, DC, and AC/DC hybrid transmission lines
- User friendly and intuitive GUI
- Evaluate the lateral profiles of the field and corona effects in a user-selectable manner
- Calculate corona loss versus rain rates
- Higher-order successive image method for calculating conductor surface gradients
- Efficient method for computing ionized electric fields, ion charge densities, and ion current densities for DC and AC/DC hybrid lines
- Customizable with the measuring height



FACE provides essential data when designing new HV transmission lines, and evaluates existing transmission lines.

Manitoba Hydro International Ltd. is a world leader in power system simulation innovation and applied engineering solutions. As the developers of the world-renowned PSCAD™/EMTDC™ software, we recognize the importance of collaborative partnerships and technologies in the global power industry.