

# EFC-400 Release 2024 – new Libraries and Functions

## Overview of the new features:

- ☐ Isolines-DXF-export shifted to double in order to avoid rounding errors
- ☐ Detailed log-file of the calculated induced current with complex values
- ☐ Command line parameter '/LFHF' for simultaneous LF- and HF-calculation
- ☐ Calculation of multiple projects of entire directories via CMD
- ☐ Construction of 1- and 2-conductor cables now possible
- ☐ New command line parameter '/saveclose'

## Extension of Libraries:

- A new example 'train\_and\_repeater.geo' of a train with an antenna system on board is included in the high frequency version. This model can also be found in the antenna library with the name 'Train'.

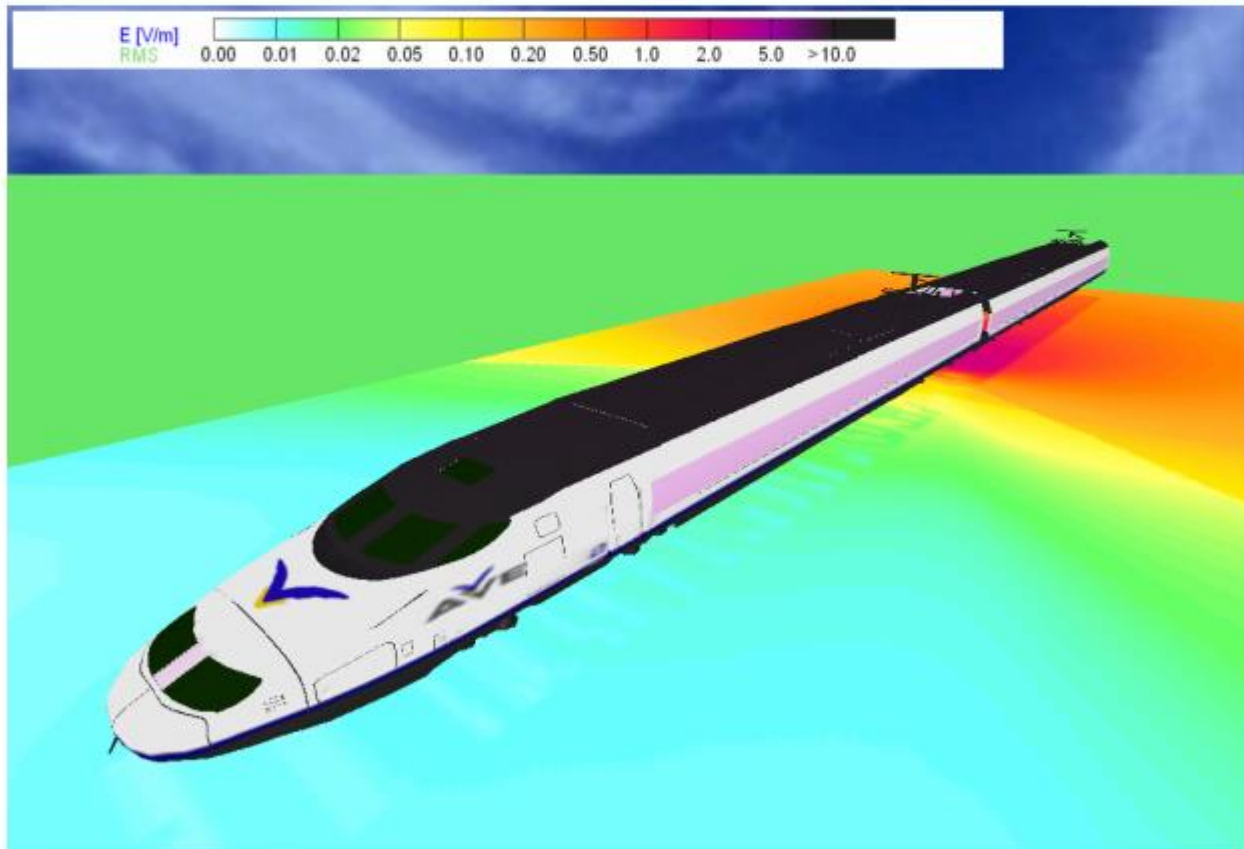


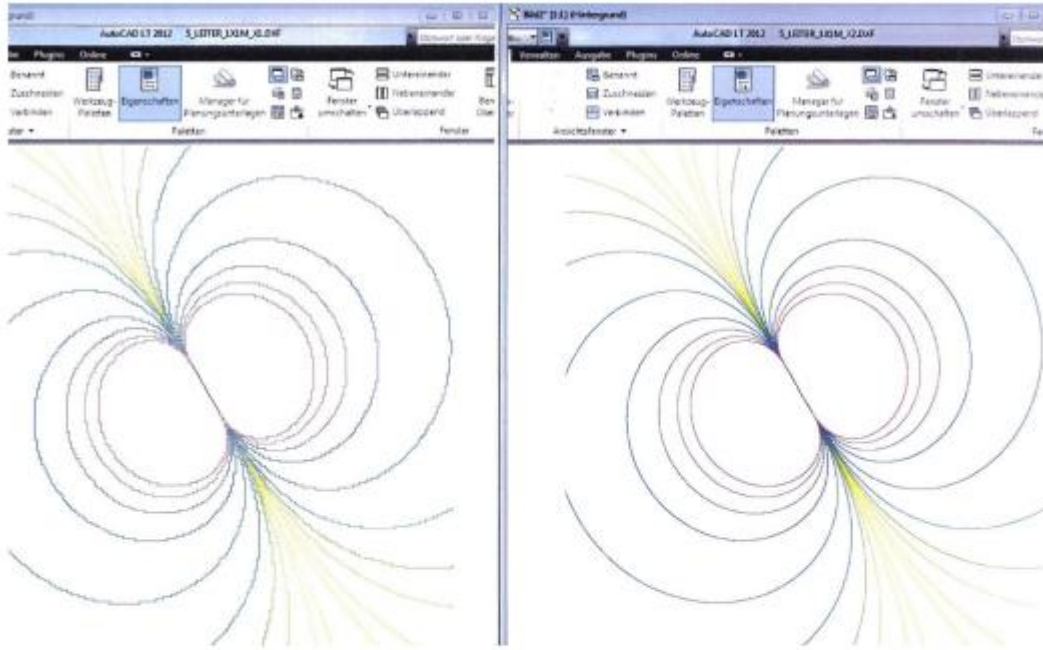
Fig.: new example of a train with internal antenna

## New Calculation Functions:

- After a calculation, both, induced currents and induced voltages are displayed in the geometry list. A log-file with the name 'induction\_tab.log' is created in the work directory. This file contains complex currents and voltages as well as the complex impedance per unit length.

## Cartographical Data:

- The export of calculation data as DXF-isolines was modified from the number format single (left picture) to double (right picture), so that rounding errors do not occur anymore in exported isolines, when working with UTM-coordinates.



- In the dialog box for background map import, the resolution is now set to 300 dpi and the map scale to 1:10.000 by default.

## New Construction Functions:

- In the function 'Construct cable' it is now possible to insert 1 as the number of phases of a cable. Using 'Connect', the 1-conductor-cable is rounded at the corners, too.

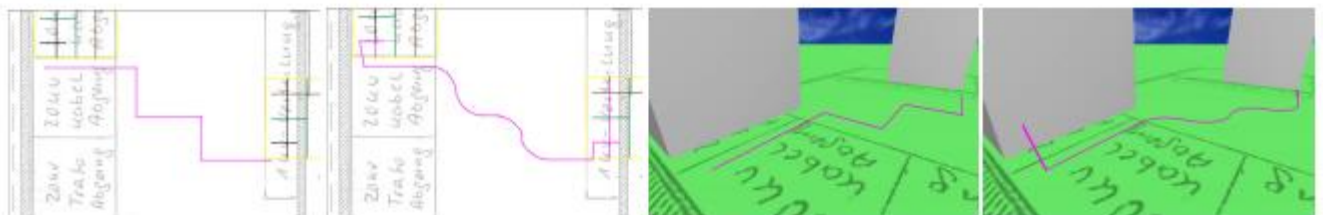


Fig.: Connection of a 1-phase-cable rounded off automatically while connected

## General Improvements:

- Projects are always saved and opened together as geometry (\*.geo) and configuration (\*.cfg). If the configuration is missing, e.g. during 'third-party-export', an error message: 'Configuration (\*.cfg) not found!' is displayed to indicate that the processing/calculation is carried out with an arbitrary - the last loaded - configuration.
- In addition to the function '/autoclose' there is now the function '/saveclose' which saves the calculation data before closing the program. The present '/autoclose' function has not become redundant by that, since it is useful when calculations are carried out in order to export data without saving the calculation results themselves.
- On the CMD, not only the filename of a geometry can now be specified for the calculation, but alternative a directory from which all geometries are calculated one after the other.
- There is a new CMD parameter '/LFHF' with which the simultaneous LF and HF calculation is carried out.

```
Administrator: C:\Windows\system32\cmd.exe
WinField - Electric and Magnetic Field Calculation Version 2024
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Call >>> WinField [/Option1..[/Option1] [InFile1..[InFile1]
or >>> WinField [Directory] [/Option1..[/Option1]

Options:
/Help <show this message>
/AUTOGROUND <load if file with same name as project exists>
/AUTOMAP <load if file with same name as project exists>
/LOCALFIELD <only for catastrophe - calc only area with source change>
/REICON <execute program as icon>
/AUTOCLOSE <close program automatically>
/AUTOSAVE <close program automatically and save calc-data>
/B/E/DBA <calculate B-field, E-field or Audible-Moise-Level>
/HF/EF <calculate Peak-value for B-field, E-field>
/CLAB,*,* <calculate B-, E-field with BB-Guideline or -del/+add>
/LFHF <calculate B-, E-field as summary of LF- and HF-field>
/EXPORTDXF <iso-line export directories_work_path\out.dxf 4 8Gad>
/EXPORTINI <2D-array export directories_work_path\out.txt 4 Excel>
/EXPORTFILE <2D-array export directories_work_path\out.xls 4 Excel>
/EXPORTCSV <2D-array export directories_work_path\out.csv 4 Excel>

InFiles:
*.geo <load project - note! that more than 1 file is possible>
*.cfg <load cfg-file>
*.ini <load ini-file>
*.kor <load coordinate list and update on /AUTOSAVE>
*.gpc <load coordinate list and update on /AUTOSAVE as *.kor>
*.dxf <load topographic map, more than 1 file is possible>
*.gxc <load topographic map>
*.jpg <load topographic map>
*.bpg <load topographic map>
*.tif <load topographic map>
*.grf <load 3D-surface model as array>
*.agr <load 3D-surface model as array, more than 1 file is possible>
*.dat <load 3D-surface model as array, more than 1 file is possible>
*.xgc <load 3D-surface model as points, more than 1 file is possible>
*.xgc <load 3D-surface model as points, more than 1 file is possible>
*.xgc <data table to load multi experimental data sets>

>>> press ENTER to continue
```

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