

EFC-400 Release 2023 – new for Windows 11

Overview of the new features:

- ICNIRP Health Physics 2020 RF limit values for 100 kHz - 300 GHz implemented
- ESRI shape format import for buildings and digital terrain models supported
- Calculation as % of exposure limit guideline ## via CMD with '/GL##'
- Audible Noise in immission points now as third-octave spectrum
- Loading and updating of coordinate list via command line

Extension of Libraries:

- The ICNIRP guideline for limiting exposure to EMF (2020), published in Health Physics Vol. 118 No. 5, for RF frequency range from 100 kHz to 300 GHz is now added to the limit library. Also new is IEEE Std C95.1™-2019, 0 Hz to 300 GHz.

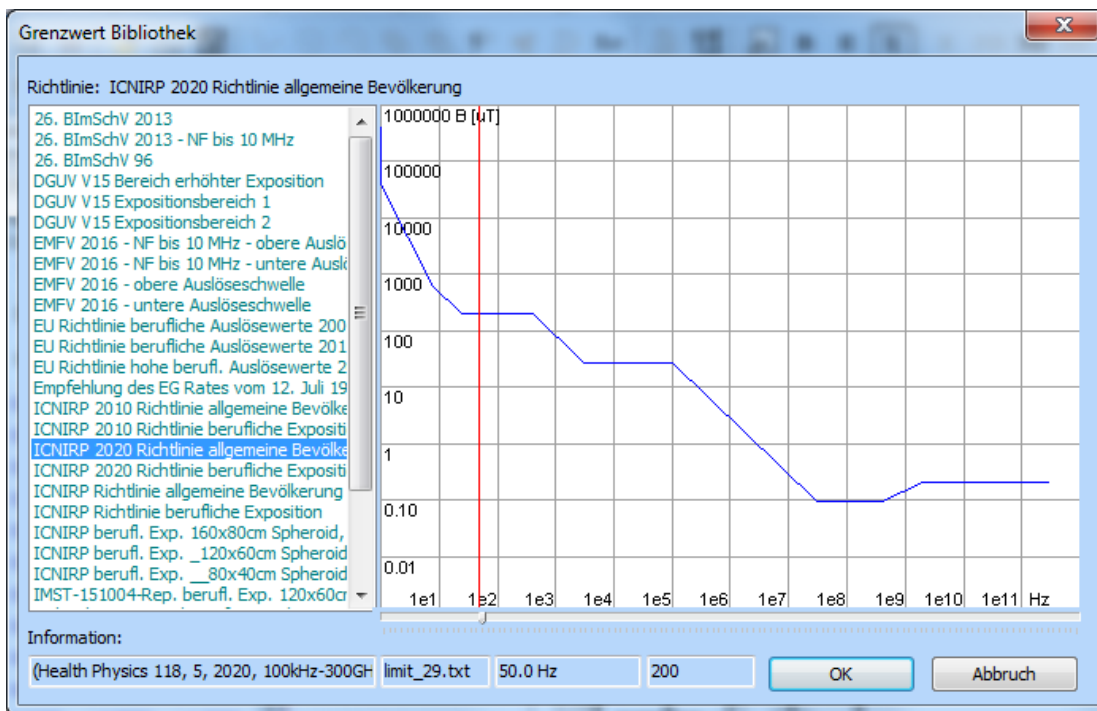


Fig.: new ICNIRP exposure limit value guideline according to Health Physics 2020 RF 100 kHz – 300 GHz

New Calculation Functions:

- When merging a geometry from several separate tower sections, as often exported by 'Power Transmission Line routing software', it was possible that in the field strength calculations artefacts at the tower bases appeared, because double and triple 'identical towers' occur by joining sections together. In the current version, these additional towers are automatically detected and skipped during the calculation, accordingly a manual correction is not necessary anymore. If these so-called 'identical towers' were not deleted in projects before Release 2023 this will be automatically corrected, while in common lower electric field strengths result direct around these towers areas. The same automatic correction has been implemented for 'identical buildings' as well.

- Previously calculation from the CMD command line were only possible for the magnetic flux density B or the electric field strength E, what is now extended to Peak-Values by the parameters /BP and /EP. Now also values in % of an exposure limit guideline from the library can be calculated with the additional command line option /GL. The following options are now available: with the command '/GL+' the calculation will be performed with the currently assigned limit guideline of the project; with '/GL-' the assigned guideline will be removed; with '\GL##' the number of the limit guideline to be used can be specified (if it should be changed).

```

Administrator: C:\Windows\system32\cmd.exe
/B /E /DBA <calculate B-field, E-field or Audible-Noise-Level>
/BP /EP <calculate Peak-value for B-field, E-field>
/GL##,-,+ <calculate B-, E-field with ##-GuideLine or -del/+add>

```

Fig.: new command line option to calculate the field strength of peak-values and as % of a limit guideline

General Improvements:

- The warning message 'Found conductors with different frequencies!', only appears if these conductors have at least a value for voltage or current greater 0 assigned, hence they are not ground or neutral conductors.
- New is the possibility that *.kor or *.gps files can be accessed via CMD command line. The software then opens the coordinate list during the start of the program and updates the list values. By adding /AUTOSAVE the list will be saved with the associated values. With this option the values of existing projects can be read out quickly using a batch file and it is not necessary anymore to open the projects manually.

Cartographical Data:

- To explain the use of gps coordinates in the coordinate list the explanation file 'gps_example_readme.txt' was added to the folder 'example'.
- The data import now also supports the ESRI shape format (*.shp file). The performance is equal to the dxf import, but many official authorities have the original data in the shape format available.

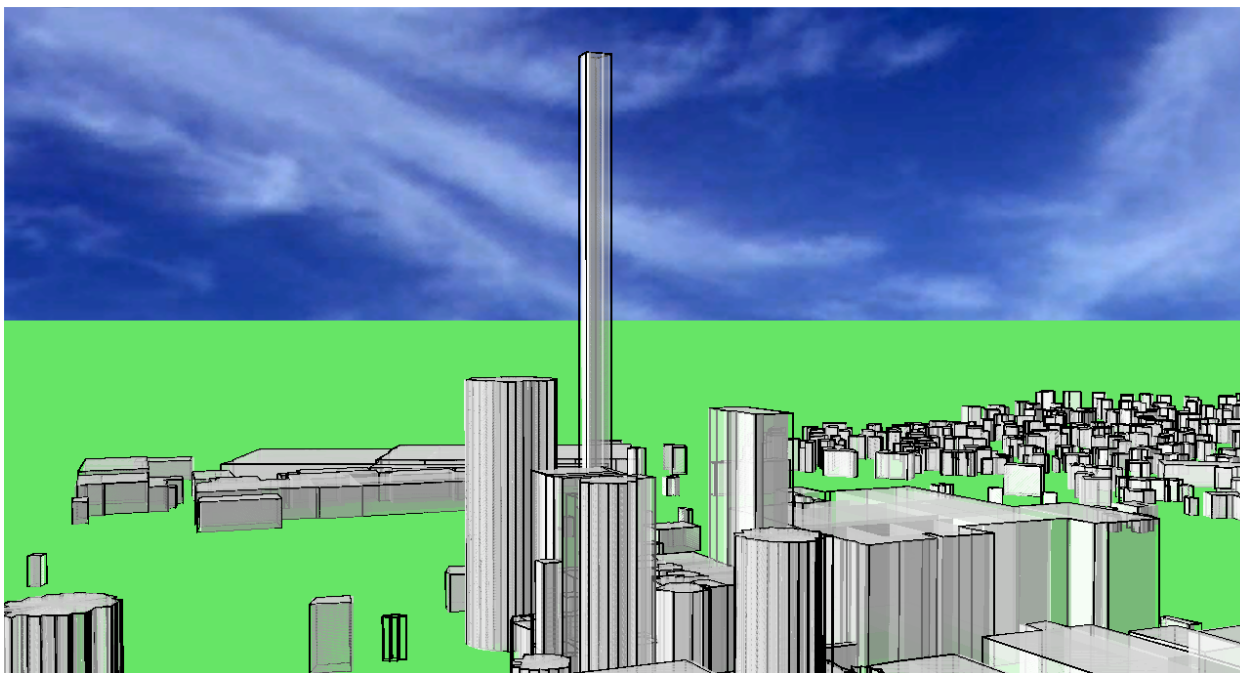


Fig.: import of buildings in shape format

Improved User Interface:

- For an Audible Noise calculation, the level for immission points can be read out not only as a single number value, but also as an immission spectrum. This spectrum was previously an octave spectrum and has now been extended to a third-octave spectrum. This has made it much easier to detect tonality.

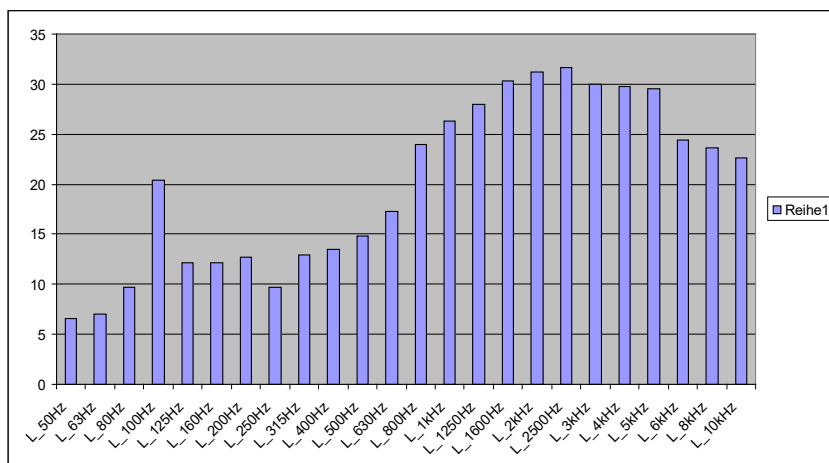


Fig.: new spectrum for immission points as third-octave spectrum with clear detectability of the 100 Hz tonality

Virtual Reality Interface:

- To prevent errors with certain graphic cards in relation with the 3D windows, the 3D windows are now only created if you click instead of the bitmap tab explicit on the 3D tab.

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