

# EFC-400 Release 2022 – new Audible Noise Functions

Overview of the new features:

- □ Readout of emission spectra in considered points of sound level calculation
- □ Height correction can be optionally switched off for sound level calculation
- □ Screen-Scale of the software optionally Dpi-Aware (scalable) or 100% (fixed)
- □ Phase optimization without local worsening according to 26. BImSchVVwV

#### **New Calculation Functions:**

• For phase optimization there is now the new option 'optimize on all points - allow no pt worse' with which the user can optimize not as before all points to the maximum value, but the optimization takes place in such a way that a point never becomes worse than already given. This procedure is mandatory for an <u>automated</u> optimization according to 26. BImSchVVwV.



Fig.: Option 'optimize on all points - allow no point worse' in the phase optimization dialog



Fig.: Example for optimizing the phases according to 26. BImSchVVwV









emitec messtechnik ag birkenstrasse 47 6343 rotkreuz switzerland tel +41 (0)41 748 60 10 fax +41 (0)41 748 60 11 info@emitec.ch www.emitec.ch

## New Audible Noise Functions:

 When performing a sound level calculation, a comment with information on voltage, system, phase angle and conductor cross-section is now written to the 'noise.log' file for the individual conductor at the end of each line. This provides better orientation for assigning the surface field strengths.

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2	1	1480.83686	1674.74118	1868.64551	0.00000	75.66500	//Obj: C3	80 Sys 1 A	2 4x240/40	
з	1	1313.12362	1485.06718	1657.01073	0.00000	69.15627	//Obj: C3	80 Sys 1 A	3 4x240/40	
4	1	1362.47800	1540.88413	1719.29026	0.00000	71.23804	//Obj: C3	80 Sys 2 D	- 4x240/40	
5	1	1514.21803	1712.49336	1910.76870	0.00000	76.78843	//Obj: C3	80 Sys 2 D	+ 4x240/40	
7G	1	429.27876	429.27876	429.27876	0.00000	-121.99718	//Obj: GW	Sys 0 A	1x44/32	
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Fig.: 'noise.log' in the text editor

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5	2	1	1480.83686	1674.74118	1868.64551	0	75.665	//Obj: C380	Sys_1 AC_2	4x240/40	
6	3	1	1313.12362	1485.06718	1657.01073	0	69.15627	//Obj: C380	Sys_1 AC_3	4x240/40	
7	4	1	1362.478	1540.88413	1719.29026	0	71.23804	//Obj: C380	Sys_2 DC- 4	4x240/40	
8	5	1	1514.21803	1712.49336	1910.7687	0	76.78843	//Obj: C380	Sys_2 DC+	4x240/40	
9	7G	1	429.27876	429.27876	429.27876	0	-121.99718	//Obj: GW	Sys_0 AC	1x44/32	
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Fig.: Import of 'noise.log' file into Excel

In the acoustic settings, it is now possible to switch off the height correction for sound sources. The corresponding checkbox has been unblocked. The execution is done (as like the other surcharges) for all methods 1-12. The option is saved together with the project in the \*.cfg file and loaded from it. For all old projects, therefore, the height correction is always =ON, just as globally when starting EFC-400 or creating new projects. During the QSI-export, the surcharges are ignored while the height correction is preserved (if not deactivated). This is also documented in the 'Noise2QsiConfig.log' file.

no altitude correction for NSPI of source (not recommended)	
NOTE: for L'WA QSI-Export all values forced to be set =0.0 automatically.	
Default >	Ok Cancel

Fig.: Switch-off option for height correction unblocked









emitec messtechnik ag birkenstrasse 47 6343 rotkreuz switzerland tel +41 (0)41 748 60 10 fax +41 (0)41 748 60 11 info@emitec.ch www.emitec.ch

 Performing sound calculations, not only single number values, but also emission spectrums can be readout for considered points now. For this purpose, the considered points have to be selected by cursor in the construction window before the calculation. After the calculation, the emission spectra in the considered points can be readout in the coordinates-list and transferred to a text window by clicking on the 'Edit' button, which can be opened in Excel as shown below.

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12 X	B(A) [8.446 14.557 9.925 12.926 25.067 29.243 24.106 4.988] B(A) [9.085 15.461 10.665 13.704 25.871 30.191 25.607 8.466]			
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Fig.: Emission spectra of considered points in the coordinates-list and in the text window

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2	-154.774	451.655	1	31.405	dB(A)	8.409	14.297	9.764	12.747	24.87	28.964	23.482	3.164	
3	-101.77	20.903	1	41.777	dB(A)	15.99	23.7	18.647	21.921	33.819	38.675	36.348	26.619	
4	-39.547	401.751	1	36.121	dB(A)	11.31	18.373	13.342	16.506	28.596	33.26	30.152	18.268	
5	21.029	-2.736	1	50.752	dB(A)	22.973	31.599	29.429	33.251	42.077	46.415	45.742	42.255	
6	88.189	-457.127	1	32.505	dB(A)	8.965	15.263	10.514	13.542	25.703	29.979	25.216	7.448	
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Fig.: Emission spectra of considered points after import into Excel









 During a phase optimization on points of the coordinates-list, a detailed listing is now logged in the file 'Phases.log', if the option 'Small log-file' is deactivated. The user can copy this into a spreadsheet program and <u>manually</u> perform an optimization of the locations according to the 26. BImSchVVwV.

	A	B	С	D	E	
1	Coordinate #	fieldstrength	Coord-X	Coord-Y	Coord-Z	
2	1	0.60688043	-56.284	-203.655	0	
3	2	14.7409582	-15.118	87.728	0	
4	3	29.7190113	2.004	158.747	0	
5	case no. field	dstrength [uT]	[kV/m] phase	e no.		
6	1	29.7190113	123 123			
7						
8	Coordinate #	fieldstrength	Coord-X	Coord-Y	Coord-Z	
9	1	0.5398351	-56.284	-203.655	0	
10	2	14.2640238	-15.118	87.728	0	
11	3	30.2800426	2.004	158.747	0	
12	case no. field	dstrength [uT]	[kV/m] phase	e no.		
13	2	30.2800426	123 132			
14						
15	Coordinate #	fieldstrength	Coord-X	Coord-Y	Coord-Z	
16	1	0.33123404	-56.284	-203.655	0	
17	2	12.801487	-15.118	87.728	0	
18	3	42.4470749	2.004	158.747	0	
19	case no. field	dstrength [uT]	[kV/m] phase	e no.		
20	3	42.4470749	123 312			
21						

Fig.: 'Phases.log' after import into Excel

## Improved User Interface:

• In the dialogs for editing multiple selected conductors or transmitters, the input fields are now only 'empty' if the values of the selected objects differ. If the values are the same, they are displayed in 'grey'. By displaying 'equal values' it is easily possible to check multiple objects as for example on voltage, current and phases.



Fig.: Dialog for editing conductors with multiple selections









## **General Improvements:**

In the 'Advanced Settings | Tools' the user can now fix the 'Screen-Scale' to 100% (what means 'non Dpi-Aware'). This causes the software to keep the size of windows, buttons and fonts constant, even though with increasing screen resolutions from 4K to 8K the 'recommended scaling' by Windows is 150% to 250%, which normally leads to a size reduction of previously mentioned elements.

Screen-Scale always 100% - non 'Dpi-Aware'							
<< std. Options Standard OK Abbruch							

Fig.: Option 'Screen-Scale always 100% - non Dpi-Aware'.

## **New Construction Functions:**

The limits for power transmission line projects have been increased. The number of 'extended towers' is now 2000 (previously 1000) and that of 'power transmission lines' 600 (previously 100).

## **Cartographic Data:**

When exporting isolines etc. as \*.dxf file, the empty drawing 'EFC-400.dxf' is used as template. The layer colors defined in this empty drawing are assigned to the isolines during export. If the user wants to change the colors, this can be done directly in the corresponding 'EFC-400.dxf' file. In any case, AutoCAD-dxf-format R12 must be used for saving the file. In case of errors occur during manual overwriting, a security-copy of the original template exists in the directory '\whatsnew\dxf-originale'.







