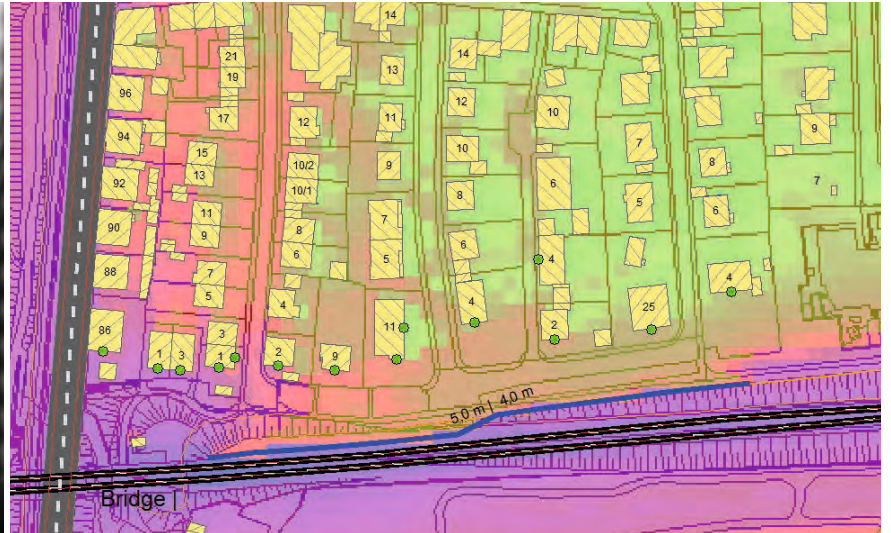


SoundPLAN®

essential



Highlights SoundPLANessential

No limit in the model size

Unlimited number of noise sources, receivers and obstacles

Road, railway and industry noise

Standard conform calculation with the original SoundPLAN calculation core

Intuitive graphical data entry

Clear display of the acoustically relevant object properties

Multithreading - use the full power of your PC

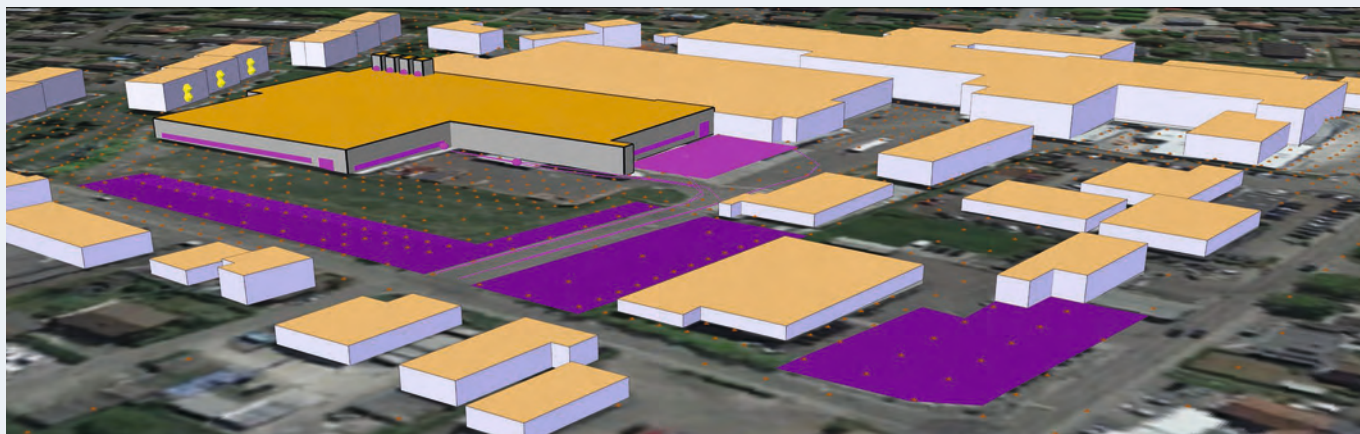
For single receiver points, limit contour lines and grid noise maps

Pleasant graphics and table presentation

e.g. documentation of the noise contribution levels or the frequency bands at the receiver

Passive noise protection

Optimization of the building facades transmission loss with the additional module BA outside according to EN 12354-3



Geometry model of an industrial site

Modelling of the Geometry

The easiest way to create the model data is to import a geo-referenced bitmap and digitize the data on top of it. If you already have digital model data, import it via the DXF, ASCII, ESRI Shapefile or OpenStreet Map interfaces. The interactive map interface to Google Maps and OpenStreetMap makes it simple to acquire background maps. Digital elevation data, such as laser scanning data can be intelligently filtered before importing them so that the elevation model needed for the noise propagation covers all relevant terrain edges but remains manageable. The following objects are available (without any restriction in the number):

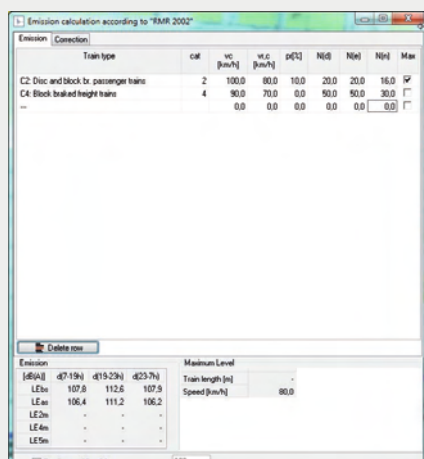
- Noise sources: Road (with traffic signal), railway, parking lot, point, line and area source (assigned or not assigned to a building)

- Ground absorption and attenuation areas
- Elevation lines and spot heights
- Buildings, noise protection walls and earth berms
- Receivers attached to a building or free-field receivers with any number of floors
- Noise map calculation area
- General lines / labeling texts

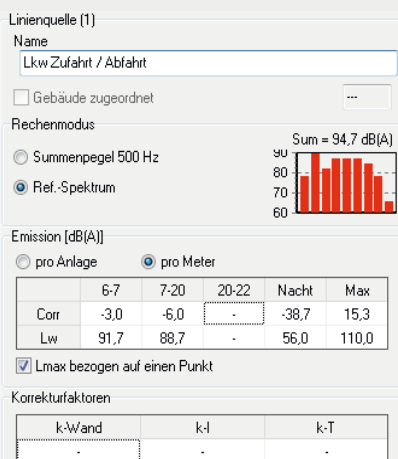
All geometry data are entered in the SoundPLANessential editor. Aside from the site map presentation, the data can also be checked for a consistent noise model in the front view or in the 3D presentation.

Definition of the Emission

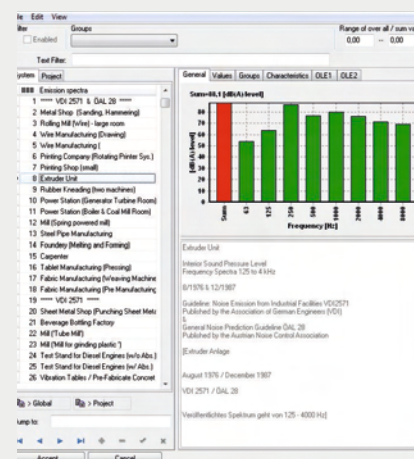
SoundPLANessential can calculate the noise emissions from roads, railways, industry sources and parking lots. The emission level of the roads is calculated from the traffic volume, the distribution to the vehicle types and other emission parameters such as road surface and speed. The emission calculation of railway sources needs the train types with their acoustical properties and the properties of the track, for example the track speed or the condition of the track. If the emission levels are already known, they can be entered directly. The emission of industrial sources is either entered as a mean sound power level or via a 1/3-octave/octave spectrum. The extensive emission library provides a large selection of different emission spectra. You can extend the library with your own spectral sources.



Emission calculation according to RMR 2002



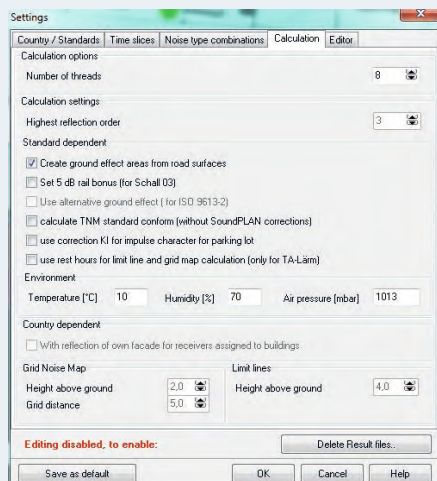
Emission definition of a line source here taking into account the rest periods



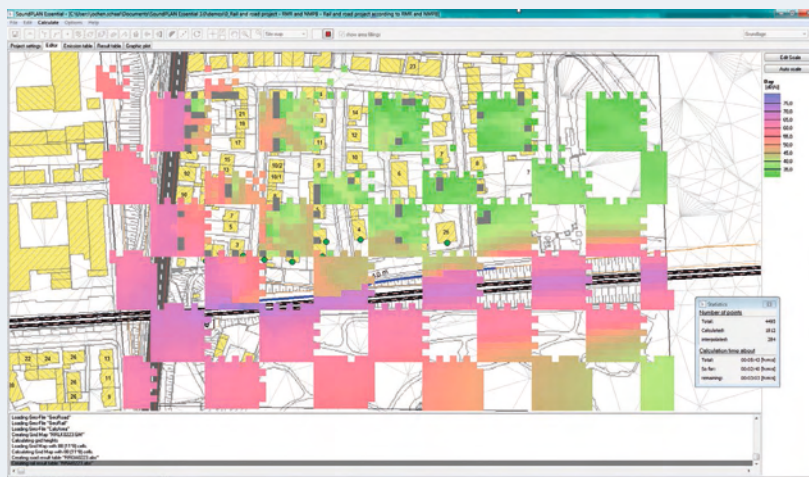
Selection of an element from the emission library with over 500 entries

Calculation

SoundPLANessential provides the following calculation types: Digital ground model from spot heights and elevation edges, single point calculations (to prove the noise situation at decisive receivers), limit contour lines and grid noise maps (display of color filled ISO-dB-areas). The original SoundPLAN calculation kernel is working in the background so all available threads of your PC can be used to guarantee a fast calculation. It is possible to calculate road, railway and industry noise together in one or in separate files. An additional project variant makes it possible to prove the decrease of noise due to noise protection walls and berms. On request the maximum level for the loudest emission point on a line or area source is automatically detected.



Calculation



Example: Grid noise map during the calculation with several threads

Road: ASJ RTN-Model 2003 · BUB: 2018 · CNOSSOS-EU: 2015 · CoRTN: 1988 · EMPA StL 95 · HJ2.4Road: 2009 · NMPB 96 · NMPB 2008 · RLS-90 · Russian Road · RVS 3.02/4.02 · RVS 04.02.11: 2019 · TNM 2.5 · VBUS: 2006

Railway: BUB: 2018 · CNOSSOS-EU: 2015 · CoRN: 1995 · FTA/FRA-HSGT: 2005 · Israeli Rail: 2006 · Japan Narrow-Gauge Railways: 2008 · NFS 31-133 Rail: 2007 · ONR 305011: 2009 · RMR 2002 (EU-Interim) · Russian Rail · RVE 04.01.02: 2019 · Schall 03: 1990 · Schall 03: 2012 · SEMIBEL · VBUSch: 2006

Parking lot: Bavarian parking lot study 2007 · RLS-90

Industry: ASJ CN-Model 2007 · BS 5228-1: 2009 · BUB: 2018 · CNOSSOS-EU: 2015 · ISO 9613-2: 1996 · HJ2.4: 2009 · Nord2000 · ÖAL 28: 2019 · ÖNORM ISO 9613-2: 2008

Assesment traffic noise: 16. BImSchV · Lden · Day/Night

Assesment industry: Day/Night • 3 Leq time slices and maximum level

Documentation in tabular and graphical form

The emission calculation of the different noise sources (roads, railways, industrial sources) and the results are clearly documented in tables. The result tables include the plain results with the assessment levels and the limit exceedance as well as the documentation of noise contribution levels and frequency spectra at the receivers. The results are in addition automatically refined for the graphical representation - either as small tables at the receivers, as limit contour lines or as color filled noise contour areas. All printouts - tables and maps - have formatted ready to print header and footer or description blocks to easily hand over expressive documents of the investigation.

Tabular documentation of the noise source properties including frequency spectra and all additions.

Project settings Editor Emission table Result table Graphic plot														
Industry Parking lot														
Source name	Reference	Level	Frequency spectrum [dB(A)]								Corrections			
			63	125	250	500	1	2	4	8	Kwall	CI	CT	
Truck movement delivery	Meter	Day	59.4	39.7	42.7	48.7	51.7	55.7	52.7	46.7	-	-	-	-
		Lmax	108.0	88.3	91.3	97.3	100.3	104.3	101.3	95.3	-	-	-	-
Truck movement pickup of goods	Meter	Day	59.4	39.7	42.7	48.7	51.7	55.7	52.7	46.7	-	-	-	-
		Lmax	108.0	88.3	91.3	97.3	100.3	104.3	101.3	95.3	-	-	-	-
Fork lifter loading goods	Unit	Day	77.4	52.6	58.6	69.6	73.6	70.6	69.6	62.6	53.6	-	-	-
		Lmax	113.0	88.2	94.2	105.2	109.2	106.2	105.2	98.2	89.2	-	-	-
Window West 2	Meter	Day	48.7	-	43.8	45.3	38.1	33.4	33.6	37.2	-	3.0	-	-

The table of the contribution assessment levels gives a quick and clear overview of the loudest sources at the decisive receiver.

Source name	Day	Lmax
Industry lane 3	43,3	68,8
Door 1 finished goods	26,8	0,0
Door 2 Material	23,5	0,0
Fork lifter loading goods	27,8	66,2
Parking manoeuvre truck delivery	33,4	59,0
Parking manoeuvre truck pickup of goods	33,5	59,1
Parking Metallfix	33,4	62,5

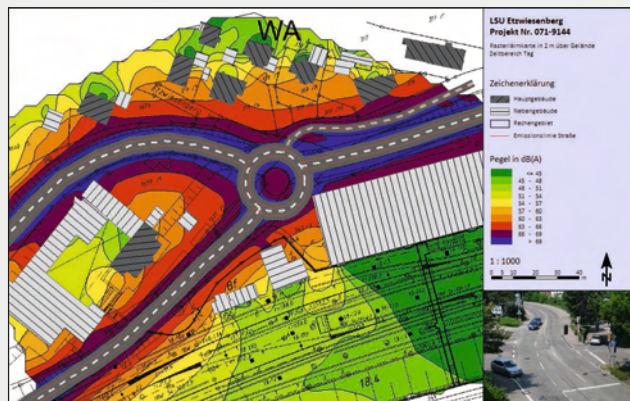
Highlights SoundPLANessential

Receivers		Contributions		Receiver spectra						
No.	Name	Floor	Time slice	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz		
2	Point 2	GF	Day	31.9	33.5	34.7	39.4	40.5		
			Evening	31.9	33.5	34.7	39.4	40.5		
			Night	32.1	33.7	34.9	39.6	40.7		
			Lden	38.5	40.0	41.3	45.9	47.0		
		1.FI	Day	32.1	33.0	39.1	40.4	40.6		
			Evening	32.2	33.0	39.1	40.4	40.6		
			Night	32.4	33.2	39.3	40.6	40.7		
			Lden	38.7	39.6	45.7	46.9	47.1		
		2.FI	Day	32.3	35.2	39.8	40.4	40.6		
			Evening	32.4	35.2	39.8	40.4	40.6		
			Night	32.6	35.4	40.0	40.6	40.7		
			Lden	38.9	41.8	46.4	46.9	47.1		
7	Point 7	GF	Day	30.4	31.7	33.6	37.9	38.7		
			Evening	30.5	31.8	33.7	37.9	38.8		
			Night	30.7	32.1	34.1	38.2	39.0		
			Lden	37.1	38.4	40.4	44.5	45.4		
		1.FI	Day	30.6	31.8	33.7	38.9	38.9		
			Evening	30.6	31.9	33.7	39.0	38.9		
			Night	30.9	32.2	38.0	39.2	39.1		
			Lden	37.2	38.5	44.4	45.6	45.5		
		2.FI	Day	30.8	33.9	38.5	39.0	38.9		
			Evening	30.8	33.9	38.5	39.0	39.0		
			Night	31.0	34.2	38.8	39.3	39.2		
			Lden	37.4	40.6	45.1	45.6	45.5		
1	Point 1	GF	Day	28.7	30.1	31.7	36.1	37.0		
			Evening	28.7	30.1	31.7	36.2	37.0		

Calculated frequency spectra at the receiver for each time slice

Road noise (NMPB) - with DGM Results of the Single Receiver Calculation New highway planning - A100													
No.	Receiver name	Building side	Floor	Limit Night	Limit	Level with NP Night	Level with NP	Level with NP	Difference Night	Difference	Conflict Night	Conflict	
1	Green road 01	South	EG	50	60	63.2	72.3	46.8	56.1	-16.4	-16.2	1.6	6.1
2		West	EG	50	60	63.6	73.0	51.6	60.1	-12.9	-12.8	1.7	6.7
3	Green road 02	West	EG	50	60	63.6	72.9	51.7	60.7	-11.9	-12.2	1.7	6.7
4		South	EG	50	60	64.0	73.5	52.7	61.3	-9.3	-9.2	0.2	3.3
5	Green road 03	West	EG	50	60	63.7	72.6	49.9	58.9	-13.4	-12.3	1.1	4.4
6		South	EG	50	60	64.5	73.5	53.9	62.9	-10.6	-10.7	0.1	3.3
7	Red road 01	West	EG	50	60	60.5	69.9	49.9	57.8	-11.5	-12.1	0.6	3.3
8		South	EG	50	60	60.4	69.9	47.1	56.8	-13.2	-13.2	0.0	3.3
9	Red road 02	West	EG	50	60	64.5	73.5	53.9	62.9	-10.6	-10.7	0.1	3.3
10		South	EG	50	60	64.0	73.5	52.7	61.3	-9.3	-9.2	0.2	3.3

Result documentation of a single point calculation with limit value and limit exceedance



Display of a grid noise map as ISO-dB areas, separate for each time slice and variant



Display of the geometry and the results at the receivers as level tables. Limit contour lines for all time slices together with the single receiver results (section)

All tables can be exported to an ASCII file or copied to the clipboard (also with columns for the coordinates). To include a complete graphics sheet in a report, copy it to the clipboard or save the image in a file. It is additionally possible to export the grid values and contour lines to ASCII, DXF or ESRI shape files.

Software Designer and
Consulting Engineers for
environmental protection
noise control
room acoustics



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