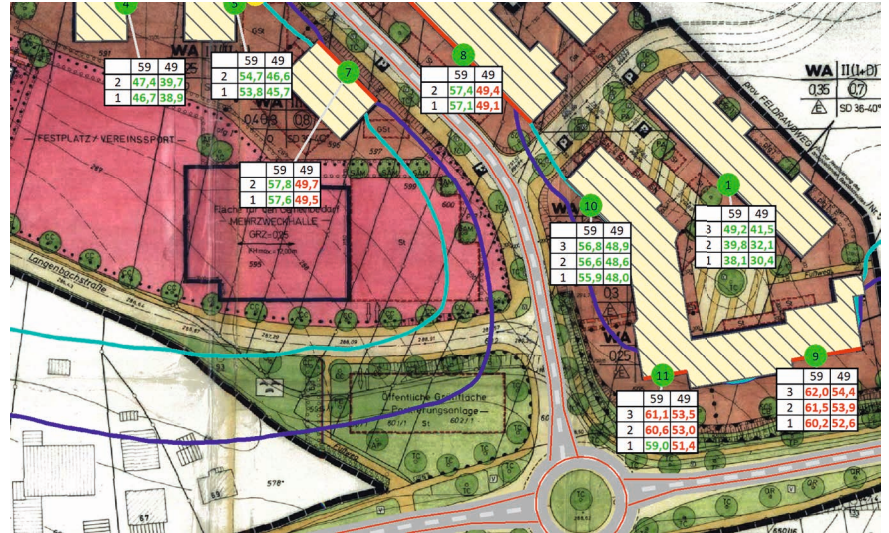


SoundPLAN®

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

Pleasing 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 ISO 12354-3

SPe

SoundPLANessential is a user-friendly software designed for noise mapping and basic sound propagation analysis. It enables users to create noise maps for multiple sources. The guided workflow is making it ideal for small to medium-sized projects. The software supports various standards and allows easy export of reports and maps for further use.

Noise protection wall (3028629)

Height [m] 2,00

☒ elements with constant wall height

☒ for calculation with noise protection

Reflection

☒ left - reflection loss [dB] 1,0

☒ right - reflection loss [dB] 1,0

Coordinates

X	Y	Gr.Elev.	Z	W.H.
530939,80	5421200,79	267,51	267,51	2,00
530947,23	5421206,60	268,11	268,11	2,00
530953,91	5421210,50	268,49	268,49	2,00
530960,45	5421213,70	268,71	268,71	2,00
530967,69	5421216,63	269,25	269,25	2,00
530974,66	5421218,99	269,74	269,74	2,00
530982,31	5421220,39	270,13	270,13	2,00
530990,39	5421221,36	270,45	270,45	2,00
530996,66	5421221,92	270,98	270,98	3,00
531004,31	5421221,64	271,46	271,46	3,00
531011,97	5421220,66	271,96	271,96	4,00
531017,82	5421219,13	272,27	272,27	4,00
531023,81	5421217,18	272,67	272,67	4,00
531030,07	5421213,98	273,02	273,02	4,00
531033,14	5421210,50	273,16	273,16	4,00
531036,48	5421211,89	273,29	273,29	3,00

X = 530995,87 Y = 5421211,74 Z = 277,38; Distance: 144,7

Select an object or begin a new object

3D model showing road traffic emissions, industrial noise sources, and a noise barrier with defined acoustic properties.

Modeling of the Geometry

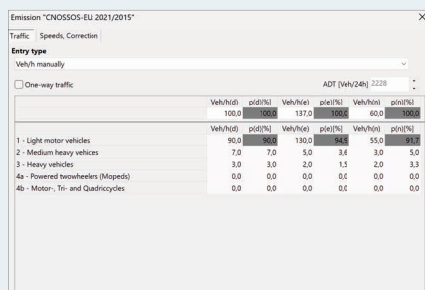
All geometry data are entered in the SoundPLANessential editor. Aside from the site map presentation, the data can also be checked for a consistent noise model in the 3D presentation. The easiest way to create the model data is to import a geo-referenced bitmap and digitize the data on top of it. The interactive map interface to Google Maps and OpenStreetMap makes it simple to get acquire background maps. If you already have digital model data, import it via the DXF, ASCII, ESRI Shapefile or OpenStreet Map interfaces. 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 junctions), railway, parking lot, point, line and area source (assigned or not assigned to a building), stages (d&b audiotechnik GmbH)
- 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

Definition of the Emission

SoundPLANessential can calculate the noise 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. The emission of industrial



Entry type	Veh/h/d	pd1/N	Veh/h/d	pd1/N	Veh/h/d	pd1/N	Veh/h/d	pd1/N
1 - Light motor vehicles	100,0	100,0	137,0	100,0	60,0	100,0	100,0	100,0
2 - Medium heavy vehicles	90,0	90,0	130,0	90,0	55,0	90,0	90,0	90,0
3 - Heavy vehicles	7,0	7,0	5,0	3,4	3,0	5,0	5,0	5,0
4a - Powered two-wheelers (Mopeds)	3,0	3,0	2,0	1,5	2,0	3,3	3,3	3,3
4b - Motor-, Tri- and Quadricycles	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

Emission calculation for a road vehicle types according to CNOSSOS-EU.

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.

Road:

ASJ RTN-Model 2018 · BUB: 2021 · CNOSSOS-EU: 2021 · CoRTN: 1988 · HJ 2.4 Road: 2021 · NMPB 2008 · ÖAL 28: 2021 (RVS 4.02.11) · RLS-19 · RLS-90 · RVS 3.02/4.02: 2009 · sonROAD 18: 2024 · TNM 3.0

Railway:

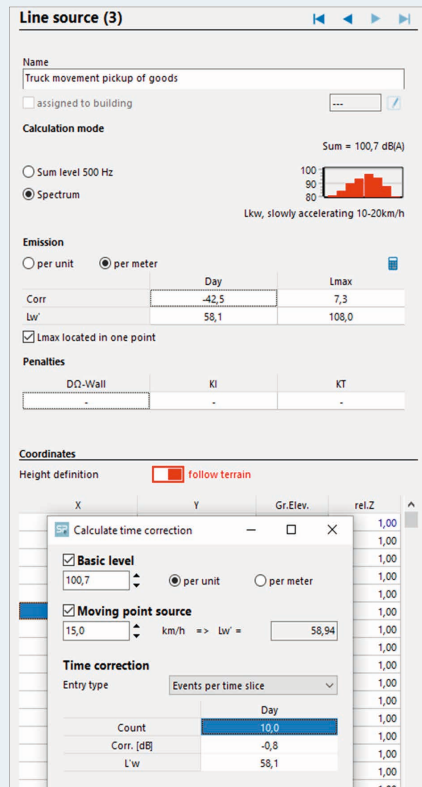
BUB: 2021 · CNOSSOS-EU: 2021 · CoRN: 1995 · FTA: 2018 / FRA - HSGT: 2005 · Israeli Rail: 2006 · Japan Narrow Gauge Railways: 2008 · NF S 31-133 Rail: 2007 · ÖAL 28: 2021 (RVE 4.02.11) · RMR 2002 · Schall 03: 2012 · SEMIBEL: 1990

Industry:

ASJ CN-Model 2007 · BS 5228-1: 2009 · BUB: 2021 · CNOSSOS-EU: 2021 · HJ 2.4: 2021 · ISO 9613-2: 1996/2024* · Nord2000 · ÖAL 28: 2021 · ÖNORM ISO 9613-2: 2008 *) without cylinders and informative annexes

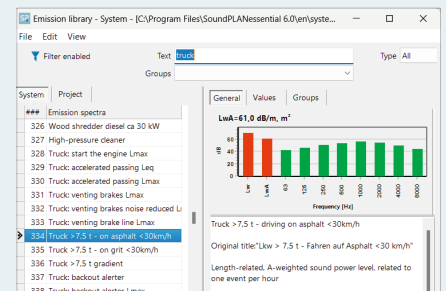
Parking lot:

Parkplatzlärmstudie (Parking Area Noise): 2007 · RLS-19 · RLS-90

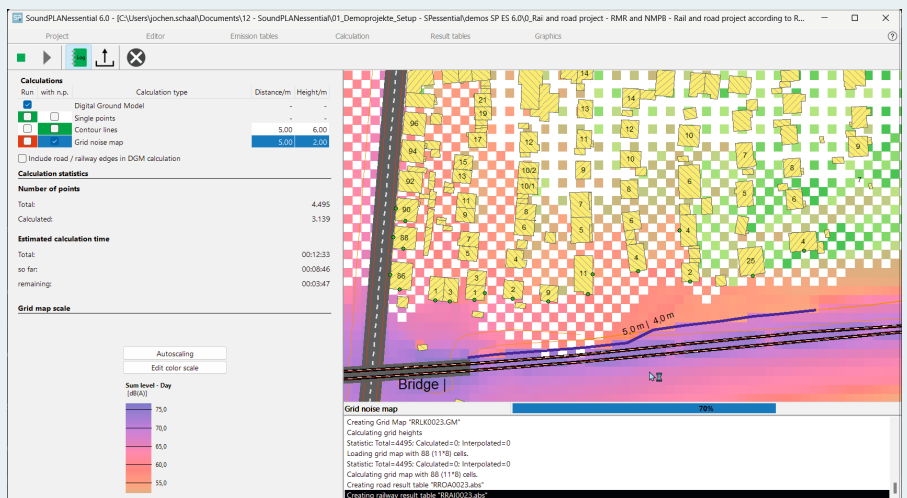


Definition of a moving point sound source with specification of the sound power level and speed.

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. The software automatically calculates the additions and deductions for the assessment times based on the operating times of the source. In addition to the sound pressure level, the maximum level can also be taken into account and assessed.



Selection of an element from the emission library with over 1200 entries.



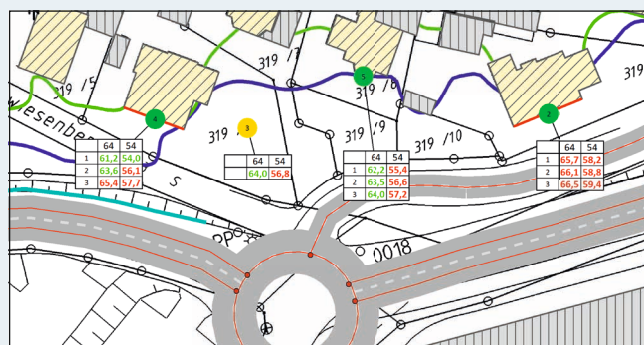
Example: Grid noise map during the calculation with several threads.

Approval procedure - Factory Metallix														
Noise emissions of industry sources														
Source name	Reference	Level (dB(A))	Frequency spectrum (dB(A))										Corrections	
			512	63	125	160	200	250	315	400	500	630	CT	CT
Truck movement/delivery	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Truck movement pickup of goods	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Fork lifter loading goods	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Door 1 finished goods	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Door 2 finished goods	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Parking manoeuvre truck/delivery	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-
Air conditioner	La/lin	Day Night	59.4 59.6	39.7 39.3	42.7 42.4	48.3 47.4	51.0 50.4	53.7 53.3	52.7 52.4	45.8 45.4	38.7 38.3	-	-	-

The mean propagation table shows detailed sound propagation results for all relevant source–receiver combinations. It includes emission levels and individual attenuation components such as distance, ground, atmospheric absorption, reflections, and screening. This enables full transparency of how the final noise level at each receiver is determined.

Display of the geometry and calculated receiver results, shown as level tables that provide a clear and compact overview within the selected map. In addition, color-coded limit contourlines for all time slices enhance the visual interpretation of the result.

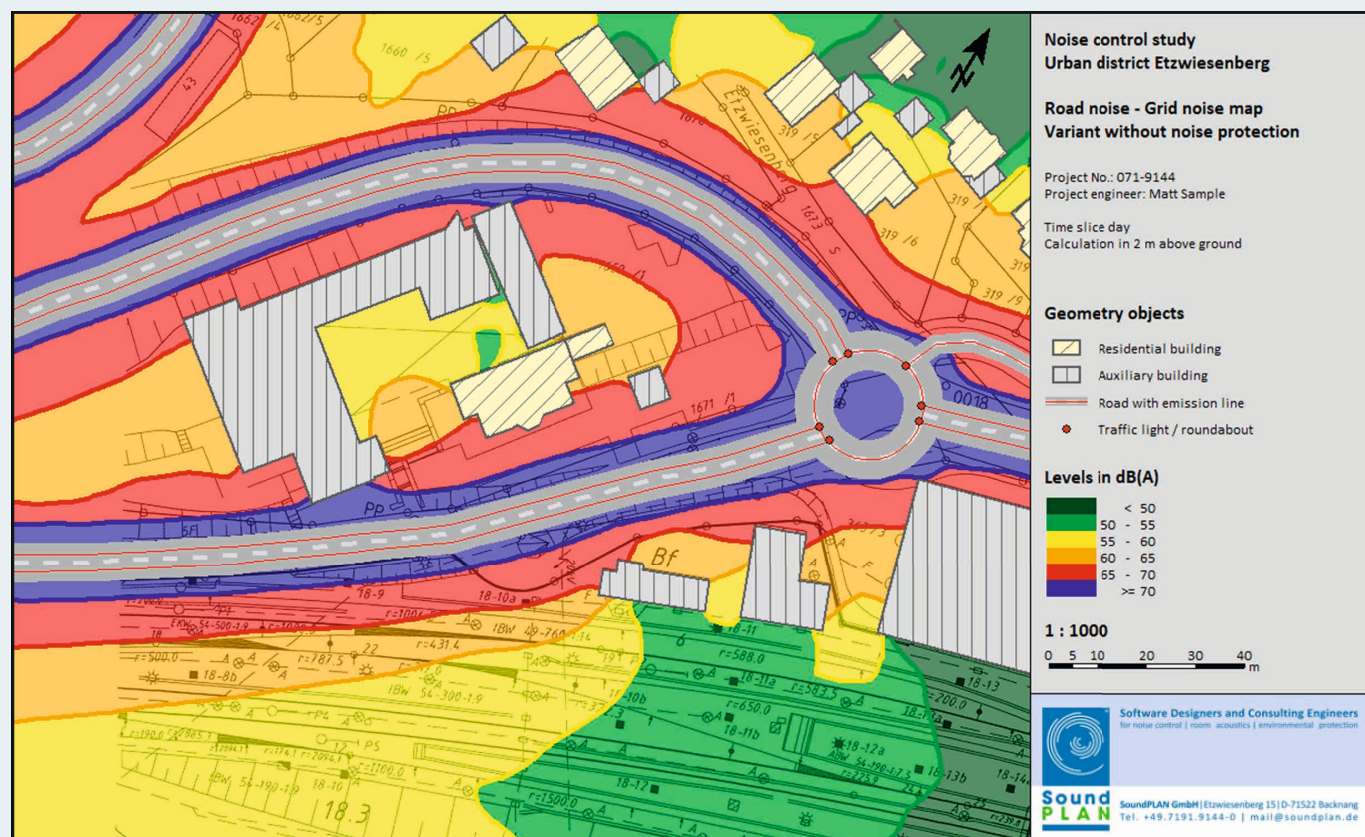
Approval procedure - Factory Metallix																										
Mean progression																										
Source name		Source type	Time class	L1a	L1b	L1c	LT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
				L1a	L1b	L1c	LT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT	OT
Industry Item 7 - EO																										
Air conditioning	Point	Day	10:0	70:0	0:0	0:0	0:0	14:28	-54:1	2:1	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	70:0	70:0	0:0	0:0	0:0	0:0	14:25	-54:1	2:1	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Door 1 finished goods	Area	Day	68:7	89:0	0:0	0:0	0:0	13:00	-53:9	2:0	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	84:0	84:0	0:0	0:0	0:0	0:0	13:00	-53:9	2:0	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Pallet loading goods	Area	Day	54:0	84:0	0:0	0:0	0:0	12:57	-52:7	1:7	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	54:0	84:0	0:0	0:0	0:0	0:0	12:57	-52:7	1:7	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Parking movement truck delivery	Area	Day	10:0	80:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	10:0	80:0	0:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Truck movement delivery	Line	Day	10:0	80:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	10:0	80:0	0:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Truck pick up goods	Line	Day	58:0	80:0	0:0	0:0	0:0	13:51	-49:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	58:0	80:0	0:0	0:0	0:0	0:0	13:51	-49:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Industry Item 7 - L90																										
Air conditioning	Point	Day	10:0	70:0	0:0	0:0	0:0	14:22	-54:1	2:0	-4:7	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	70:0	70:0	0:0	0:0	0:0	0:0	14:22	-54:1	2:0	-4:7	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Door 1 finished goods	Area	Day	68:7	89:0	0:0	0:0	0:0	13:07	-51:0	2:1	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	84:0	84:0	0:0	0:0	0:0	0:0	13:07	-51:0	2:1	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Pallet loading goods	Area	Day	54:0	84:0	0:0	0:0	0:0	12:57	-52:7	1:7	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	54:0	84:0	0:0	0:0	0:0	0:0	12:57	-52:7	1:7	-4:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Parking movement truck delivery	Area	Day	10:0	80:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	10:0	80:0	0:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
Truck movement delivery	Line	Day	10:0	80:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
	Night	10:0	80:0	0:0	0:0	0:0	0:0	13:58	-51:0	1:8	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0



The figure below shows a grid-based noise map presented as ISO-dB contour areas, calculated for the daytime period and at a height of 2 meters above ground level. The map displays the spatial distribution of sound levels using color-coded contours, making it easy to identify high and low exposure zones across the study area.

The results can be shown separately for different time slices (e.g., day, evening, night) and for different source groups, which may include road traffic, railways, parking areas, industrial sources, or the combined total. This allows for flexible evaluation and clear visualization of individual and cumulative noise contributions.

A detailed background map provides geospatial context, linking the acoustic data to surrounding buildings, infrastructure, and land use. Together with the legend and scale, this output is well-suited for use in technical documentation, planning, and communication with stakeholders.



SPe+

Additional content of SoundPLANessential +

is available exclusively as an annual subscription license, providing access to the latest features and expert support. It also includes additional valuable tools to enhance modeling and documentation capabilities.

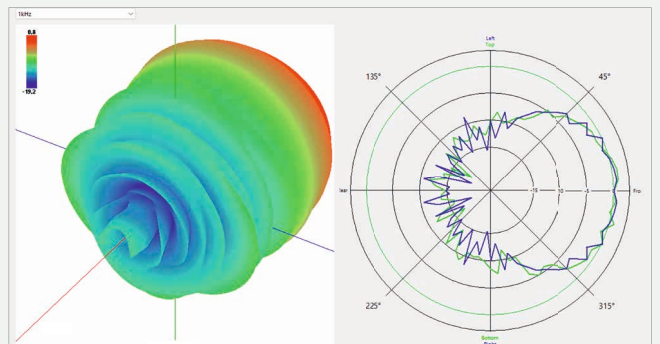
The advanced map interface allows geometric objects to be imported directly from OpenStreetMap along with their properties for a selected area. This saves a significant amount of time and further simplifies the creation of model data.



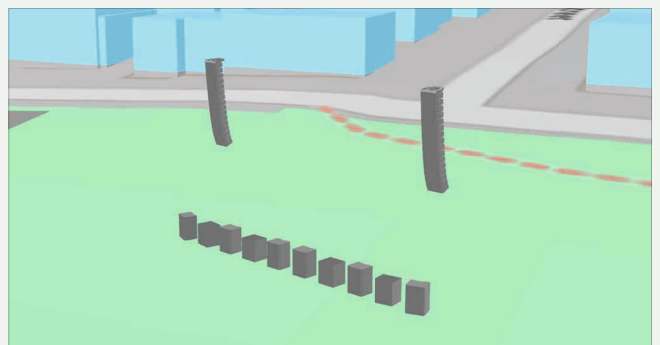
Map interface with integration of Google Maps and OpenStreetMap for easy selection of the investigation area. Enables direct transfer of background maps and/or geospatial data for accurate positioning and context.



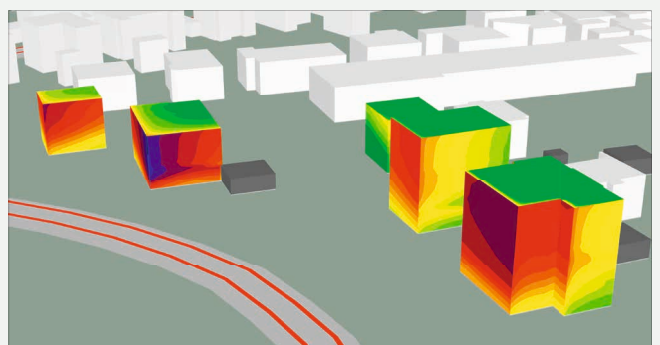
When modeling complex industrial facilities, the consideration of directivity effects of noise sources is a critical factor. SoundPLANessential+ allows you to add 2D or 3D frequency-dependent directivities to your sources and include them in the noise prediction calculation. You can use elements from our included directivity library, define your own, easily import existing loudspeaker data (such as CLF files), or generate stack directivity effects based on the ISO 9613-2:2024 standard.



Unlike traditional approaches that rely on static, pre-calculated directivity data - typically valid only for a given distance and unable to represent interactions between sources - SDE enables dynamic, physically accurate simulation of entire sound systems, including their spatial coherence behavior. This is particularly relevant for predicting environmental noise emissions from large-scale events, where conventional methods are inadequate for handling multiple interacting arrays, varying propagation paths, or the effects of meteorological conditions. The integrated SDE methodology allows simulation of the entire signal chain, spectral content, system tuning, and propagation effects.

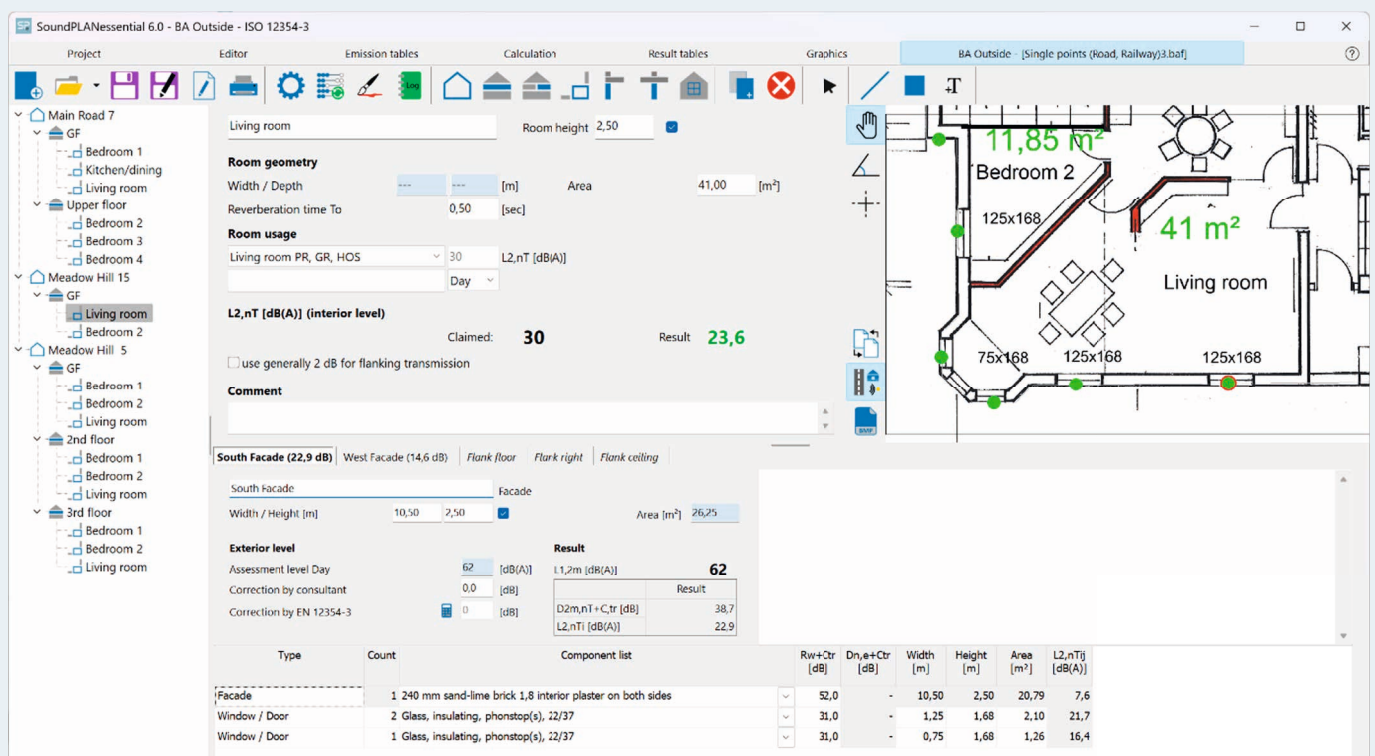


Generate detailed facade noise contour maps for selected buildings and present them within comprehensive 3D visualizations. This approach allows for an in-depth analysis of noise impact, providing clear and informative insights into noise distribution around the structures.



The additional module

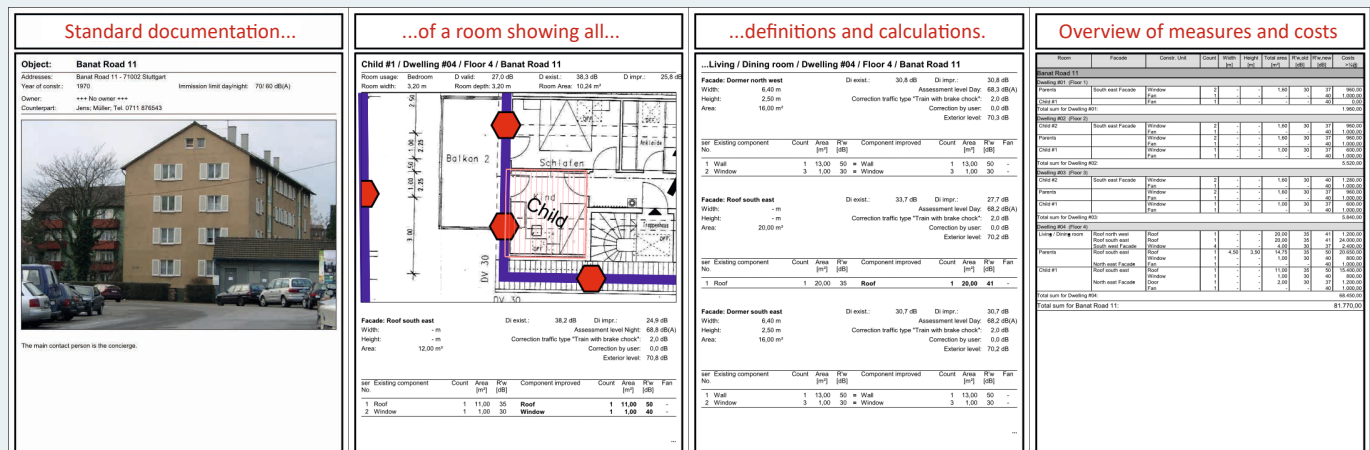
Building Acoustics - Outside can be used to prove the acoustic properties (the transmission loss) of a room envelope against outdoor noise. The module can be used independently from the rest of SoundPLAN. In this case, the user enters the relevant outdoor levels manually. It is, however, more convenient to use previously calculated single point receivers or facade noise maps as the basis. This tool can be used for a single building, but includes all the infrastructure needed to simultaneously investigate hundreds of potential buildings while keeping track of all necessary information. For each building, the user can assign pictures to visualize the object, and assign owners and tenants from a database so all needed information is readily available to make appointments and to address letters. The interior structure of a building is completely flexible. Available objects are floors, apartments (flats) and rooms. The layout of the facade is assigned for each room. The building envelope can consist of an infinite number of elements and outdoor levels. The setup of an element can be a combination of a wall and embedded objects like windows and doors. The user can enter the transmission loss as single, octave or 3rd octave values, or the data can be loaded from a large database. For single panel walls, the transmission loss can even be calculated with an integrated calculator. The project output is flexible, ranging from the total documentation of the whole project with all objects and elements, or just a list of needed actions and associated costs, making Building Acoustics Outside a very useful noise remediation tool.



Interior noise level evaluation according to EN ISO 12354-3.

Standards:

2. FlugLSV: 2009 · 24. BImSchV · DIN 4109: 1989/2016/2018 · EN ISO 12354-3: 2017 (single values) · VDI 2719: 1987



Highlights SoundPLANessential

Overview of Program Features and Differences

This comparison outlines the key features of SoundPLANessential and SoundPLANessential+ highlighting some of their unique capabilities and differences.

	SoundPLANessential SPe	SoundPLANessential + SPe+
No artificial limitation of the model data	•	•
Various geometry import interfaces	•	•
Data and attribute import for OSM via convenient map interface		•
Definition and calculation of traffic noise (road/rail) or commercial and leisure noise	•	•
Free definition and utilisation of directional effects for point, line and area noise sources		•
Definition and calculation of electro-acoustic installation	• ¹⁾	•
Utilisation of all available processors and threads	•	•
Comprehensive tabular documentation	•	•
Graphical documentation - Level tables with limit isophones - Color-coded noise map - Color-coded 3D facade noise maps	• •	• • •
Building Acoustics - Outside	• ²⁾	•
Available with a perpetual license for long-term use	•	
Available as a Cloud License (CL), providing flexible, time-limited access	•	•

¹⁾ Only export data from d&b audiotechnik software ArrayCalc (dbac2 and dbpr format).

²⁾ Can be purchased as an additional option and is not included in the basic SoundPLANessential package.

SoundPLANessential offers a range of options that cater to both occasional users seeking a straightforward workflow and experienced professionals who need solutions for acoustically demanding projects.

If you would like more information or wish to schedule a personalized presentation, please contact your local SoundPLAN distributor. Together with our global network of partners, we are dedicated to ensuring that everyone working in the field of noise protection receives the support and answers they need.

Software Designers and
Consulting Engineers
Experts for Noise Control
and Room Acoustics



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