

The Assessment Record

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No matter the noise type SoundPLAN first calculates 24 noise levels, one for each hour during the day. Next, from these 24 levels a single value ('noise indicator' or 'noise descriptor') should in general be evaluated, e. g. in order to compare the result with a noise limit. This evaluation the assessment record takes care of.

The assessment record can be freely composed in order to fulfil any national or international standard/guideline. In the System library there are some predefined records, but in general it is a job for the user to tailor a record that fits the project.

When you create a new project, the start-up procedure will copy your Global Assessment library (the file 'AssessX.abs' in the Globdata folder) into the project folder. If you have not built a global library the similar file from the System library of the current language will be copied instead.

To create a new assessment record, open the Assessment library, click the red '+' in the lower left part of the window and name the new record. Now click the button 'Add' the relevant number of times in order to create the wanted number of index cards, one for each noise indicator you want the program to calculate. You can ask for as many values you like, e. g. Lden, Leq24,road, Leq24,rail and Lmax,rail.

Select first the type of level, Leq or Lmax from the Type roll-down menu. Next give the indicator and the corresponding limit a short name and a legend. Fig 1 explains where the names/legends appear in the Result Tables and table settings. The short names can have max 10 digits, the Legend more than 45.

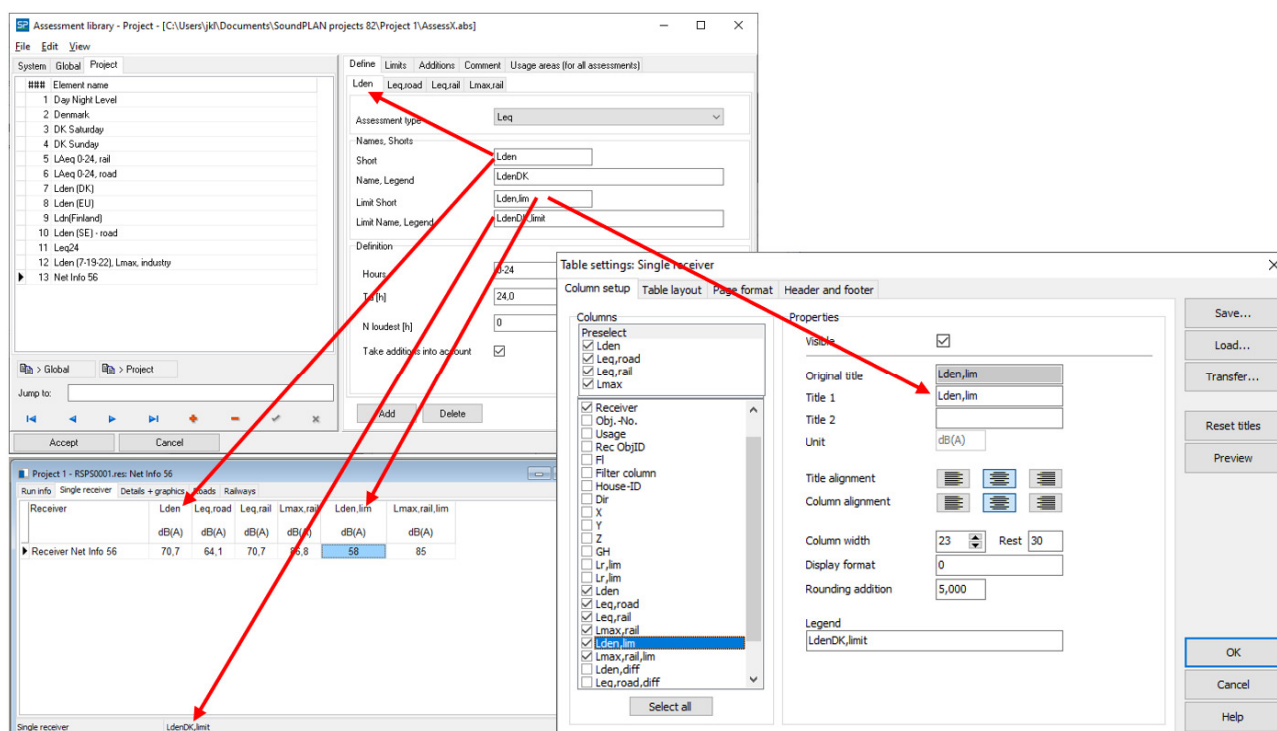


Fig 1 Assessment record with matching result table and table settings

For each noise indicator you can key in the relevant noise limit on the index card 'Limits', see Fig 2.

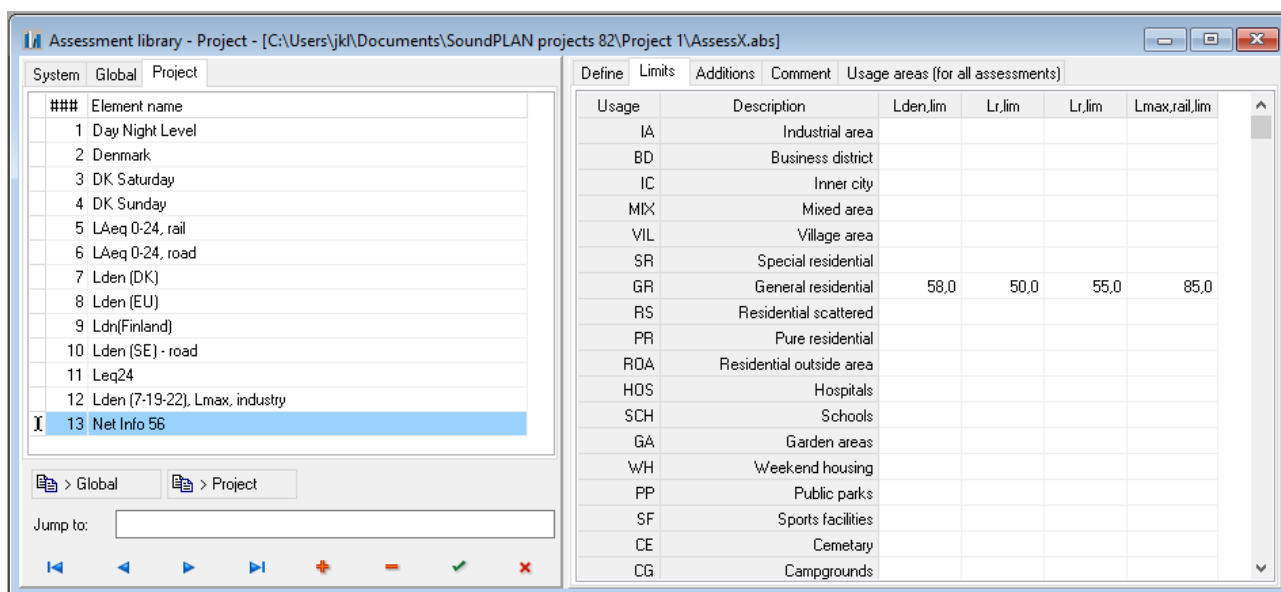


Fig 2 Noise limits are inserted on the index card 'Limits'.

If the noise indicator should be evaluated not for all 24 hours but only for a certain time slice, the time span is set under 'Hours' on Define index card. Further it might be relevant to take out a certain number of consecutive hours in which the energetically sum is highest; that number of hours must be keyed in for 'N loudest [h]' and the averaging time is 'Ta[h]'. For instance, the full day period could range from 7 am to 6 pm, but the day level must reflect Leq in the 8 noisiest hours. In that case key in N loudest = Ta = 8.

Penalties during certain time periods are inserted on the index card 'Additions', see Fig 3

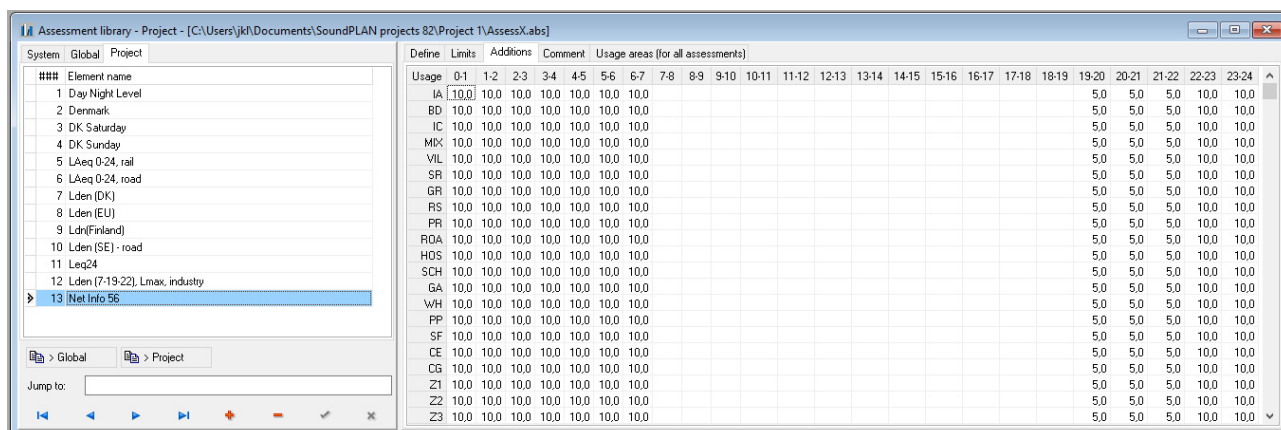


Fig 3 Penalties for calculation of Lden

Once you have completed the new assessment record you must make sure it is used during the calculation. Go to the run properties in Calculation, select on index card Assessment the relevant record and tick the indicator(s) you want SoundPLAN to calculate. The selected indicator(s) will be preselected in the result table, see Fig 4

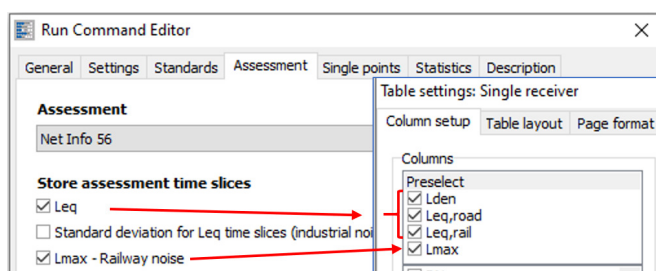
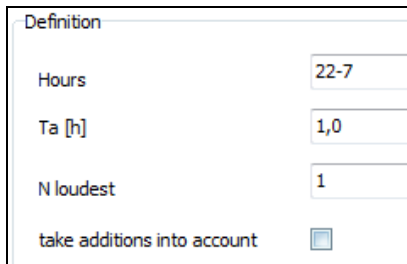


Fig 4 Select the assessment record in the run set up

Hint for users performing industry noise projects according to Danish guidelines: Miljøstyrelsens vejl. 5/1993.

The SoundPLAN Day histogram splits the day into 24 units of 1 hour each. Consequently, the shortest possible time slice for which the program can evaluate the highest level is 1 hour. According to the guidelines the noise indicator for the night period must be evaluated from those 30 min in which the noise is loudest. To make SoundPLAN return the correct result, you must therefore ‘massage’ your input in the day histogram.

First define N loudest = Ta = 1 like shown in Fig 5



Definition	
Hours	22-7
Ta [h]	1,0
N loudest	1
take additions into account	☐

Fig 5 Preparing for $L_{eq,30\text{ min}}$

Basically, you should ‘double’ the activity since the program is using an averaging time (1 hour), which is twice the reference time (30 min). In that way you keep the correct ratio between active time and reference time. However, this rule of thumb is only valid if the active time is shorter than 30 min. Below are some examples.

1. The source runs cyclically but in worst case for more than 30 min. In the day histogram you must define full activity, e. g. 100 % or 60 min/h for each hour during night.
2. The source runs cyclically but max 20 min per 30 min. Key in 67 % or 40 min/h for each hour during night.
3. A short time event takes place N times during 30 min. Key in 2N [E/h] for each hour during night.

It gets a bit more complicated if multiple sources are running during intervals of various lengths. In that case key in for each unit in the day histogram the percentage active time of 30 minutes regardless of the actual clock.

Example:

Three noise sources are running cyclically (illustrated by lines on Fig 6; the time scale is real time).

- Source 1 stops for 15 min every 45 minutes.
- Source 2 runs 50 % of the time in 15 minutes intervals.
- Source 3 also runs 50 % of the time but in 30 minutes intervals.

SoundPLAN will find the correct $L_{eq,30\text{ min}}$. However, the noisiest time slot will not be estimated to the correct clock (can be seen on the ‘Source Contribution – 24 h Distribution’ index card in the Result Tables), but this is only relevant if one-time-events (like arrival of a lorry) take place during the same time slice. In the example on Fig 6 the noisiest period is found from 5-6 o’clock, but in real life it was from 02:30-03:00.

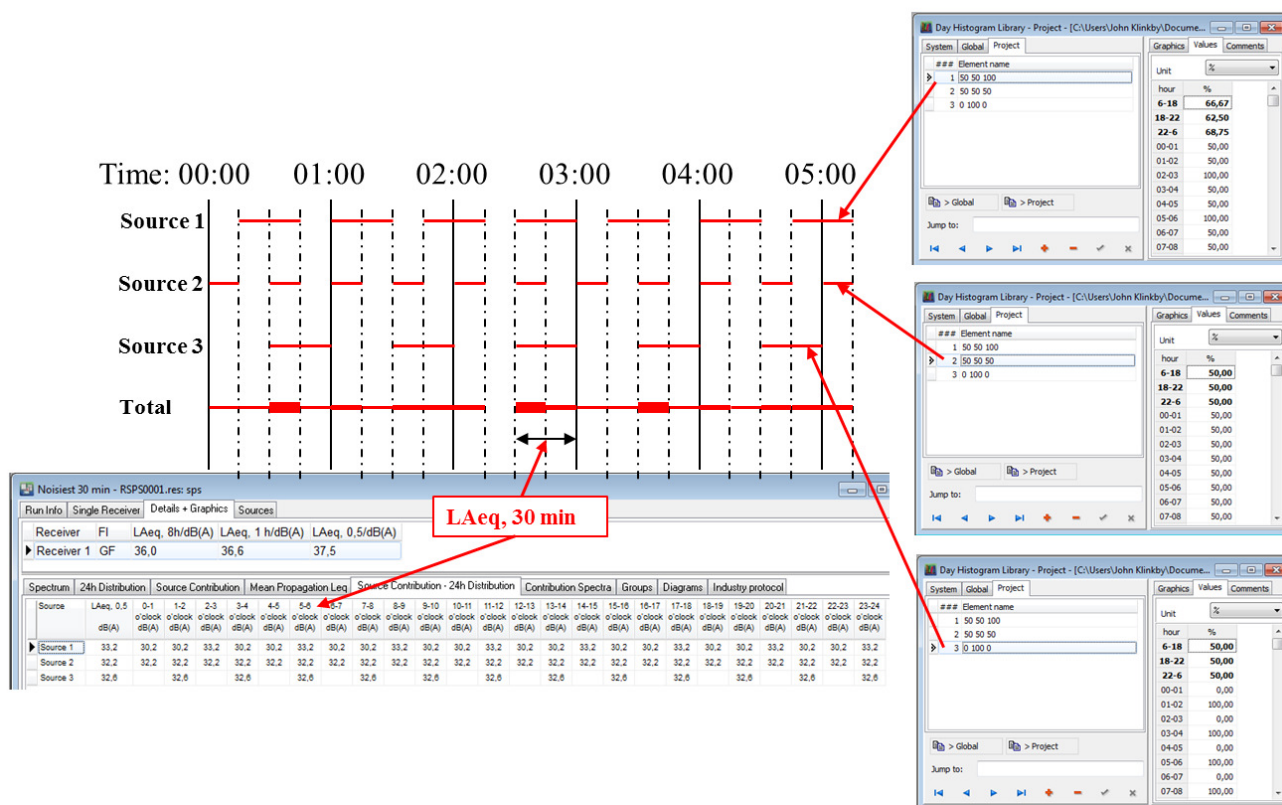


Fig 5 Evaluation of $L_{eq,30\text{ min}}$ in cases with multiple sources running cyclically.