



BS 4142 2014 - Methods for rating and assessing industrial and commercial sound.

Revisions in the 2014 version place far bigger penalties on the sound source under investigation for tonal, impulsive and other noise characteristics. The penalties are cumulative and can be added together to give a total penalty of 18dB compared to 5dB in the previous standard.

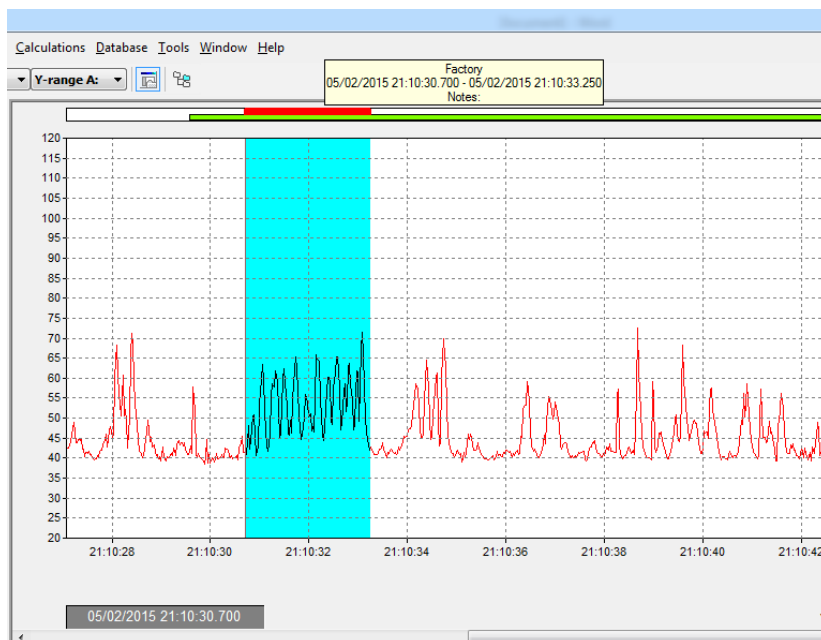
To assist in applying the penalties Norsonic have introduced a package of options for their meters and PC software, to give the data and answers you need.

Tonal penalty

BS 4142 2014 Annex D specifies the standard ISO 1996-2 as the method for calculating tonality in a noise source based on FFT. The standard contains an algorithm to identify tones and rate them for tonality accordingly.

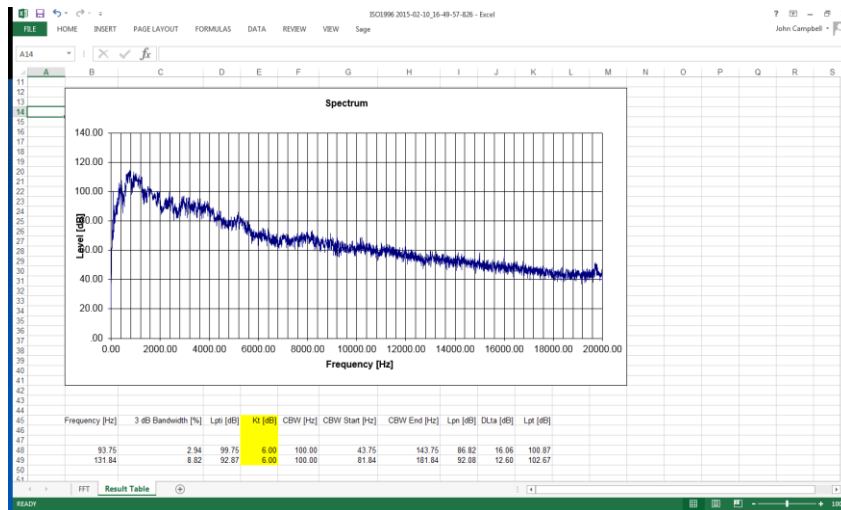
To perform the calculation you should record high quality audio of the noise source under investigation. This is achieved by pressing the record button on your Norsonic 140 or 150 analyser or using a level trigger for unattended measurements.

Open this measurement file in Nor-Review. To run the tonal calculation go to calculations/ ISO 1996-2 from the menu bar. You should then click on the audio recording on the Lt graph that you want to run the calculation on. It is recommended to listen to your audio recording to be sure it is the source you are investigating. You can add markers when you have listened to the recordings to identify the relevant parts of your recording.



You can then select a highlighted area, the whole audio recording or the area you have labelled with a marker for the calculation.

Nor-Review will then run the ISO 1996-2 calculation and produce an Excel report. The Excel report will have a FFT display and a table where it lists the detected tones. The tones are reported with their Frequency Hz and Kt correction between 0 and 6dB.

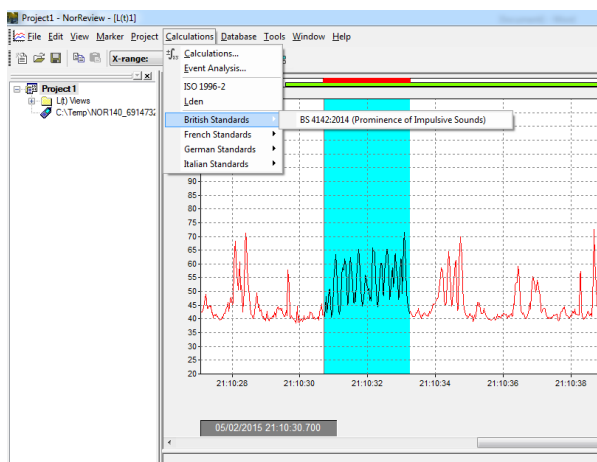


Impulsive Sounds

BS 4142 2014 gives a calculation procedure in Annex E which specifies how impulsive sources should be measured and the impulsive character rated.

The **measurement requires that you log the sound pressure level every 10 to 25ms**. You should ensure that your Norsonic 140 or 150 is set to store the sound pressure level SPL every 25ms.

This measurement file should be opened in Nor-Review. The go to Calculations/British Standards/ Prominence of Impulsive Sounds.



The software will then run the calculation and provide an excel report with an Adj Ki dB correction

1	Prominence of impulsive sounds					
2	BS 4142 2014 Annex E					
3						
4	Sound source	Date/Time	Level diff. [dB]	Onset rate [dBs]	Prominence	Adj. Ki [dB]
5	Factory	05/02/2015 21:10:30.975	12.6	143.4	8.7	6.6
6	Factory	05/02/2015 21:10:31.225	3.5	32.2	5.6	1.1
7	Factory	05/02/2015 21:10:31.450	2.6	52.2	6.0	1.8
8	Factory	05/02/2015 21:10:31.675	6.2	86.8	7.4	4.3
9	Factory	05/02/2015 21:10:32.100	9.1	104.8	8.0	5.4