

# INSTRUCTION MANUAL



## **Nor1051 – User Guide - February 2020**

Im1051\_1Ed2R0En - V3

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# NorConnect Nor1051

**NorConnect Nor1051** as covered in this manual is our file transfer and data management program for the Nor145 and Nor150 instruments. NorConnect is freeware and is a part of the instrument delivery. The program supports all communication environments offered by the new generation of instrumentation and measurement hardware and enables remote connection via modem or WLAN.

Many advanced features aside connection and transfer of files are included:

Comprehensive search engine making it easy to sort and search across projects and measurements.

Seamless integration to Excel using NorReports, as well as to NorReview and Nor850 if a more detailed analysis is required.

Optimized graphical view tools for the different file types: building acoustic, sound power, sound intensity and environmental/general measurements, also including notes, pictures and GPS data stored with the file.

Scan through your measurements, use the extensive file combine features, listen to audio recordings and generate reports using predefined- or your customized templates to make user-defined reports. Then finally email files/reports directly from within the program.

The user interface is clear and easy to use, thereby facilitating instrument connection, measurements transfer, file administration and reporting in the most efficient way.

## News in V3

- Mode dependent browser in both views: instrument connected and files downloaded
- Graphical view now also for building acoustics- and intensity files in addition to general analyser files
- Extended Combine features for measurements
- Info button: measurement details, notes, pictures, GPS data..
- Excel reports for files containing FFT analysis
- Linear units display




# Installation of NorConnect

NorConnect is a freeware and can be downloaded from:

[www.norsonic.com/downloads](http://www.norsonic.com/downloads).

When entering the download site you are prompted to leave your name and e-mail to access to the download site. The only reason for asking for your contact data is to enable us to inform you in case of vital bugs are found in the software you have downloaded. Your contact data will not be distributed or used by Norsonic for other purpose than described above.

Follow the instruction and install the program on your PC.

 Please refer to the Nor145 and Nor150 user manual on how to setup the instruments for communication.


NorConnect is designed to operate on Windows 10


Once the program is installed, start the program from the shortcut on your desktop, from the start menu or taskbar.

## Description

The picture 1.1 shows the main working environment. A brief overview is shown and more details are given in the following chapters

The right-hand side of the screen shows the content of the instrument memory while the left part of the screen shows the content of the designated measurement file folder on the PC. We can call the latter the “file work space” since this is where you will work with the downloaded measurement files. We have now left the traditional “file browser” or “Explorer” interface and all downloaded files of the same type, eg. building acoustics are conveniently shown together, independent on the specific sub-folders in which they are physically stored. This allows an easy view and access to the files of the same type. It is still possible to view the files in a browser, more on this later

 HINT! Default location is:  
C:\Users\\Documents\My Measurements

 You may connect as many instruments as you like apart from when using USB, only one instrument can be accessed one by one.

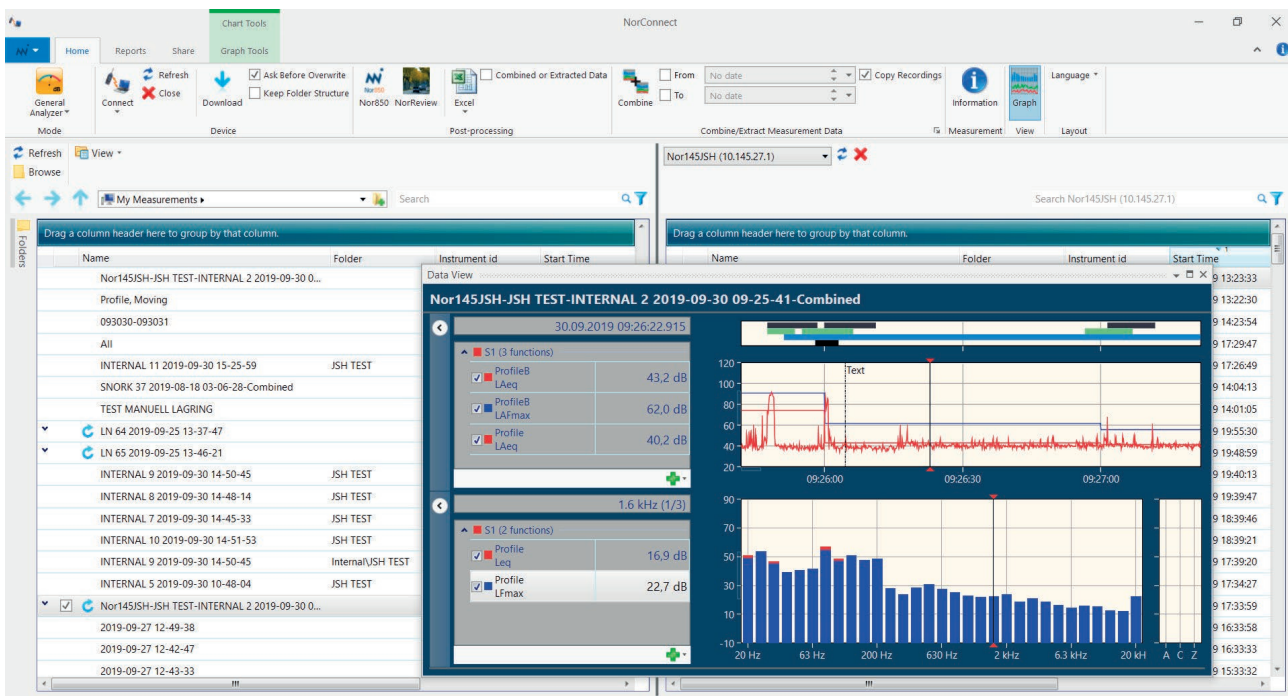


Figure 1.1

Files are easily transferred from the meter. Use your preferred means of communication to the Nor145 or Nor150 to the PC, be it “wireless” on WLAN or cellular modem, cabled using LAN or USB cable or simply reading files direct from the SD card. After some seconds the connection is established and the content of the memory for the connected instrument is shown. Simply select from the list in the right-hand (device) frame and drag & drop it over to the left-hand (computer), then right-click and send the file as an email attachment.


Extract and convert measurement data to Excel files using NorReports templates as well as Nor850 or NorReview for further post-processing of the measurement and the built-in report possibilities therein. Just highlight the measurement(s) and click on the desired function!

The user interface lists files of the same type from the Nor145, Nor150 and also the Nor850 files of different modes: General-, Intensity-, Building Acoustics, Sound Power and Appliance Noise as well as projects from Nor850. In addition the Excel reports made on the measurement data are automatically put in separate categories, so they are easily located. Very comprehensive sorting- and searching criteria can be made to enhance the “housekeeping” further, even for the Nor850 files/projects. This allows for a purposeful management of all the measurement files, projects and reports in a very efficient way!

The “View” function now functions for all measurement types: Sound Power, Building Acoustics and Intensity measurement reports, offering a graphical view of the final results. For the “Environmental” mode measurements from the Nor145 and Nor150 and also the “General Analyser” mode files from the Nor850, a graph tool gives a nice display of both the level vs. time as well as the level vs. frequency parts. In addition it gives the ability to listen to audio recordings, choose a specific time frame and make a new measurement for this period and more.

Multiple files made in the “Environmental mode” in the Nor145 and Nor150 as well as the “General Analyser” mode in Nor850 can be combined directly “at the click on a button”, or a time frame within the first- and last file chosen resulting in a new measurement.

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 Tool tips are found for many functions. Hover the mouse over a menu or button to learn.

---

## Initialize USB

First time use of the Nor145 or Nor150 requires that the USB driver is installed.

---

 **Tips!** As you can choose from a number of ways to communicate with the instrument, you may skip the steps in this chapter.

---

Connect the instrument to the PC with the USB cable Nor4525.

The USB in the meter must be set to “Normal” with the Static IP address at 10.150.150.1

Click the “Information” button in the upper right corner of the screen and select “Initialize”

This will install the driver and allow you to work with the Nor145/Nor150 on USB.

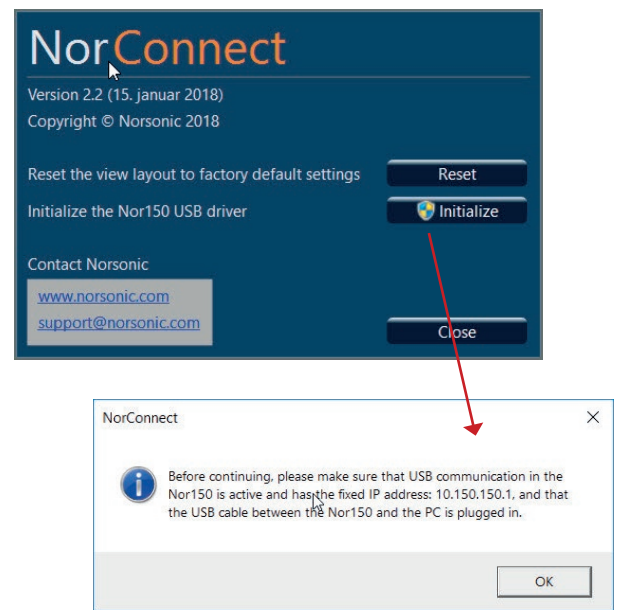


Figure 1.2



# File interface

## Instrument

The content of the memory in the instrument is shown with the measurement files grouped by the mode in which they are made.

- General Analyser
- Building Acoustics
- Intensity
- Sound Power
- Appliance noise

See figure 2.1.

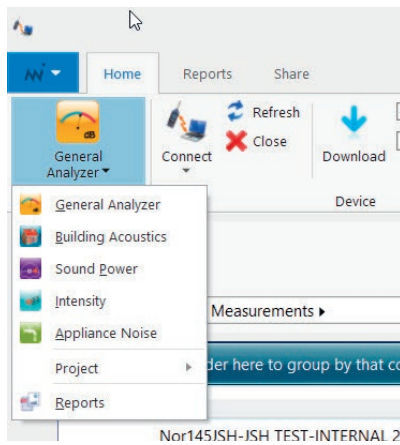


Figure 2.1

## PC

All files of a similar type, eg. Building Acoustics are conveniently shown together, independent of the specific sub-folders in which they are physically stored. The different file “identifiers” for “Environmental” mode measurement: “Name”, “Folder”, “Start-time” are used as column headers.

For Building Acoustics measurements there are also a number of other meta tags used as column headers which allows comprehensive search and sort possibilities. Right-click the column header and select which of these shall be active. See figure 2.2.

## Where are my measurements and reports stored

The default storage folder on the PC is shown in Figure 2.3. You may however select any directory for your measurements.

**HINT!** Default location is:  
 C:\Users\\Documents\My Measurements



Figure 2.3

Folder	Date modified	Standard	Type	Subtype	Criteria	Date of test	Date of signature	Client	Name	Descr
AIRBORNE-MultiPr...	26.11.2018 13:26:43	ASTM E336 - 16	Airborne			10/10/2018	10/10/2018		Folder	
	07.12.2018 13:28:20	ASTM E336 - 16	Airborne			11/27/2018	11/27/2018		Date modified	
Lowerfloor\iinke	16.10.2019 10:39:29	ASTM E336 - 16	Airborne			16.10.2019	16.10.2019		Standard	
Lowerfloor\My Bui...	16.10.2019 10:58:01	ASTM E336 - 16	Airborne			16.10.2019	16.10.2019		Type	
upperfloor	16.10.2019 10:24:13	ASTM E336 - 16	Airborne			16.10.2019	16.10.2019		Subtype	
upperfloor	16.10.2019 10:36:44	ASTM E336 - 16	Airborne			16.10.2019	16.10.2019		Criteria	
	17.10.2019 11:13:08	ASTM E336 - 16	Airborne			17.10.2019	17.10.2019		Date of test	
	17.10.2019 15:05:19	ASTM E336 - 16	Airborne			17.10.2019	17.10.2019		Date of signature	
	30.10.2019 15:44:54	ASTM E336 - 16	Airborne			10/28/2019	10/28/2019		Client	
2CH COMPLETE	11.10.2019 15:12:49	DIN 4109-4 Hall-R...	Airborne	HallRoom		1/11/2017	1/11/2017		Object	
	17.09.2018 12:13:58	ISO 16283-1	Airborne	Normal		9/17/2018	9/17/2018		Description	
	11.06.2018 05:22:14	ISO 16283-1	Airborne	Normal		11.06.2018	11.06.2018		Manufacturer	
	10.10.2017 15:15:04	ISO 16283-1	Airborne	Normal		10/10/2017	10/10/2017		Product Id	
TEST.JSH	11.12.2018 10:15:18	ISO 16283-1	Airborne	Normal		7/10/2018	7/10/2018		Test room Id	
									No. of test report	

Figure 2.2

This is done in the options menu by clicking the “N” icon on the upper left side of the screen. “Options” and setting your preferred storage directory (Figure 2.4).

If the Nor850 software program is installed on the PC it is possible to use the same settings.

In the same menu you may also alter the default setting for: length, pressure and temperature. There is also a possibility to select the output format of the “calibrated” audiofile, .wav or .uff.

It is easy to make sub-folders under “My measurements” and then drop your measurements there

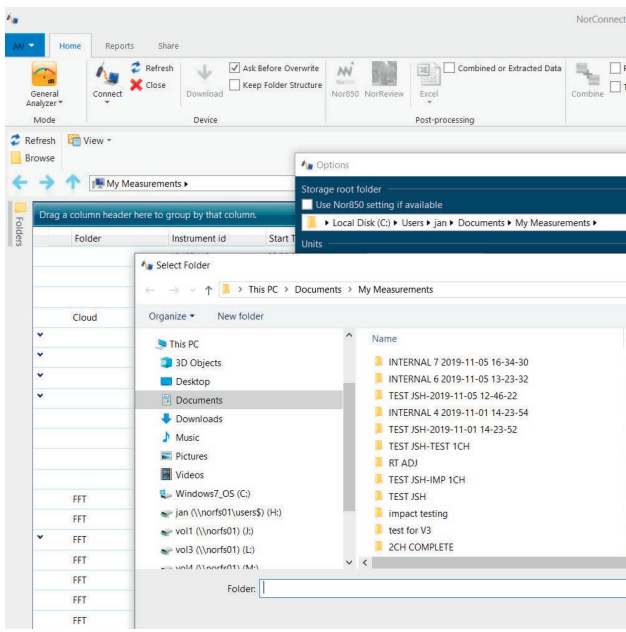


Figure 2.4

You can also access the measurements from the folder window (docked if you like) at the left hand side of the screen (Figure 2.5).

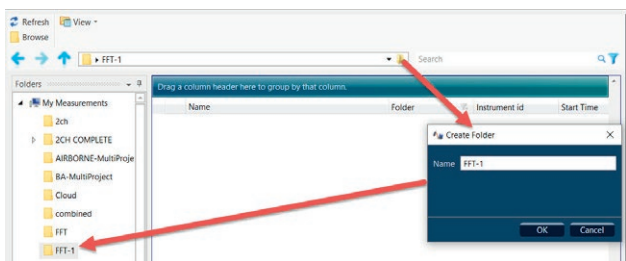


Figure 2.5

# Measurement transfer

## Connecting the instrument

Connect the Nor145 or Nor150 to the PC using the preferred communication method.

In the Nor150 you have the following possibilities:

LAN, USB, WLAN or directly to the microSD card.

In the Nor145 you can also choose a Cellular modem.

To be able to connect to the instrument using the cellular connection, the SIM card must have a fixed public IP (or using dynamic DNS).

Using public IP address can be a potential security risk!

The secure alternative is having a VPN subscription for the SIM card. Norsonic can supply such SIM cards for Europe (EU)\*.

\*To be able to use this VPN cards, the PC must have access to the VPN.

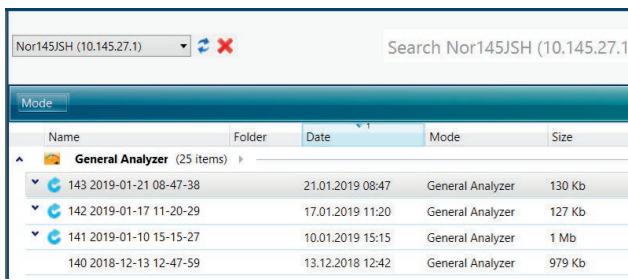


Figure 3.1

The connected instrument can for example be the “Nor145JSH (10.145.27.1)” as shown in figure 3.1. The name “Nor145JSH” is read from the instrument and the additional numbers are the IP address in use. In this case you just search for the WiFi network called “Nor145JSH” in the list of available wireless networks on your PC, select this and connect.

We assume that the user have already setup the meter and PC, thereby allowing to find the IP address and connect as shown

You may set/change the connection. Description is found in the instruments user manual section on communicating with the instrument.

## Info view

We have also introduced an “Info view” including details on the measurement, name, setup, functions, sensors, calibration, GPS position (if taken), notes and more. Figure 3.2

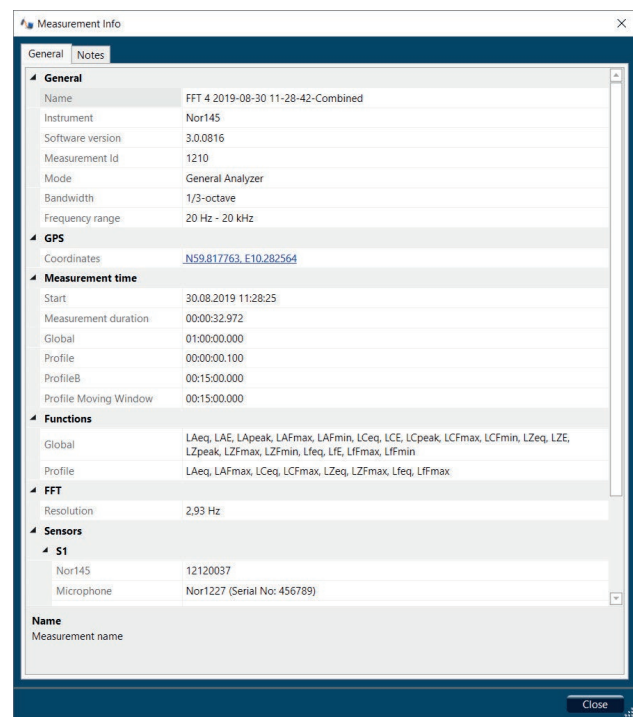


Figure 3.2

Note that if you attempt to transfer many files and/or large files it may take time. Also, if the SD card in the instrument contains a large amount of data it will take time to scan through

Note that if you don't see any measurements in the right-hand window for your connected instrument, check that the Mode selector is set to the corresponding type of measurement. Eg. if you want to download a building acoustic measurement you will not see anything in the file window if the mode is set for General Analyser

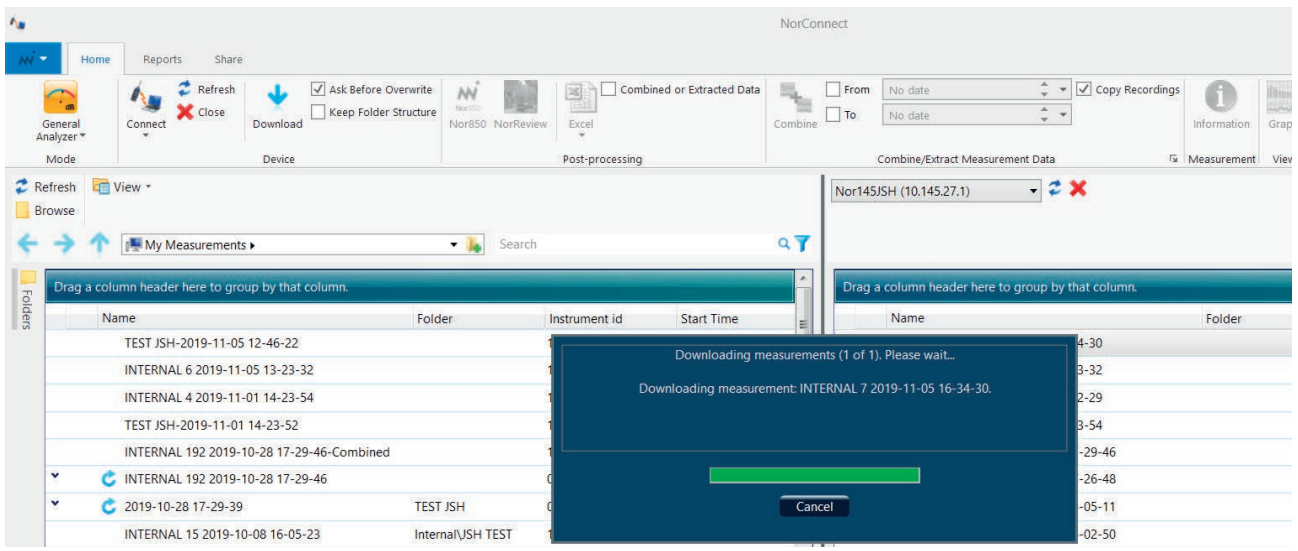


Figure 3.3

## Transfer

To transfer the measurement, simply select and drag & drop to the PC or use Copy & Paste. See figure 3.3.

Pls. note that you must close the measurement before attempting to transfer it.

Alternatively you may remove the micro SD card from the meter and insert it in the PC.

Usually the internal readers are SD card size, so you may need an adapter from the micro SD card size and up. Else use an external card reader connected to the PC.

We strongly recommend to use NorConnect for measurement transfer, **NOT** WinExplorer. One reason for this is that you may open a directory not meant to be accessed. If changes are made to such a directory, the instrument may fail to work properly and/or you may lose data!

## Search

It is possible to search for files on the PC or a measurement. The search will be done on text that are part of the text in the displayed columns

You may also narrow your search by applying different filter criteria (Mode, Date) on the connected instrument/SD card as shown in Figure 3.4.

For Nor850 files there is a possibility to enter text phrases in the Description box.

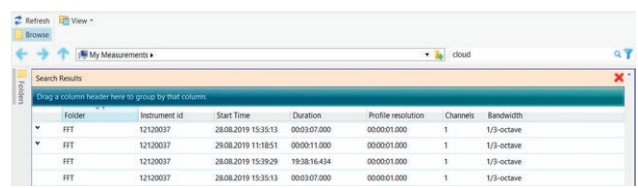


Figure 3.4

## Working with folders

We have added a window where you may view the contents of the designated storage directory, by default chosen as "My Measurement"(shortcut). This can be convenient to use to quickly move to a specific folder.

To open this function, click the Folders icon on the left hand side of the screen as shown to produce the view as shown here where each folder (and sub-folder if present, indicated by an arrow) under My Measurement is shown in figures 3.5, 3.6 and 3.7.

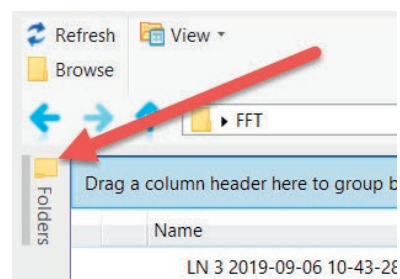


Figure 3.5

You may dock this window so it stays put if this is how you want to have your view.

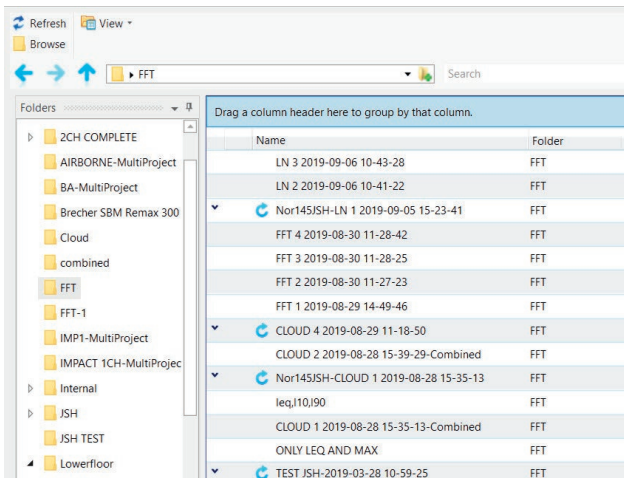


Figure 3.6

Please note that the folder view shows all folders for all modes!

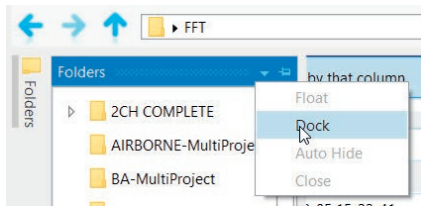


Figure 3.7

### Adding a folder

You may also add “sub-folders” under “My measurements” and store directly to any of these if you like.

Click the icon for “Create Folder”, then key in the name you want and hit OK. Figure 3.8.

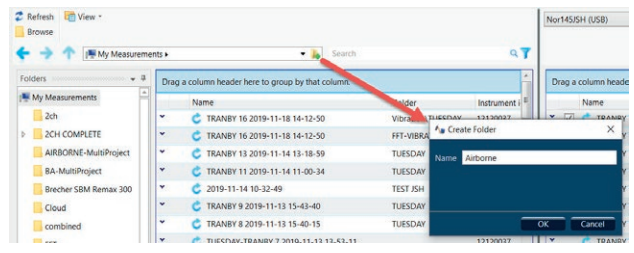


Figure 3.8

This will result in a new folder to which you now easily can drag & drop your measurements - figure 3.9

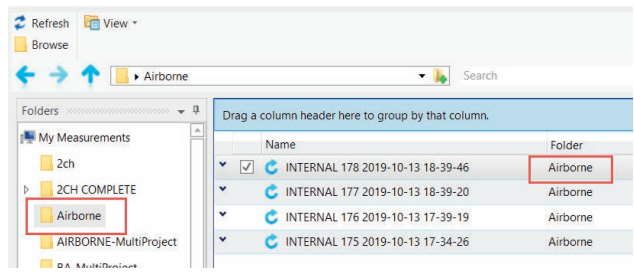


Figure 3.9

### Graph view

For “General Analyser” measurements you may use the “Graph view” function to show the content of the Profile part of a measurement. Just double-click on the file to open this, alternatively click on the chosen file, the toolbar will activate, then click on “Graph view” (Figure 3.10).

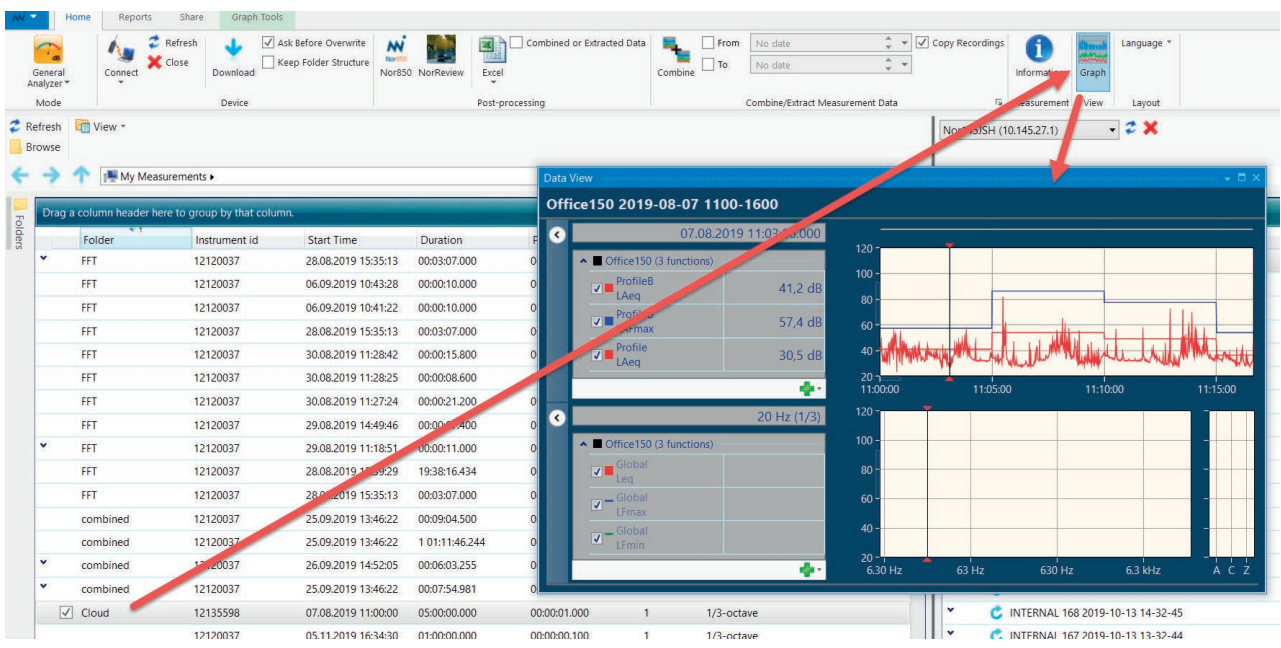


Figure 3.10

The measurement data is presented as a level vs. time- and frequency view for the General Analyser files.

You may also use Zoom in/out functions as found under “graph tools” (Figure 3.11) and listen to audio recordings using the standard Windows Media Player (Figure 3.12). The audio recordings are shown as markers.

Another possibility is to make a so called “calibrated” .wav file, giving a fixed absolute level, which will enhance further post-processing of the audio file.

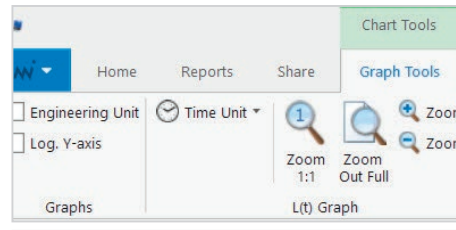


Figure 3.11

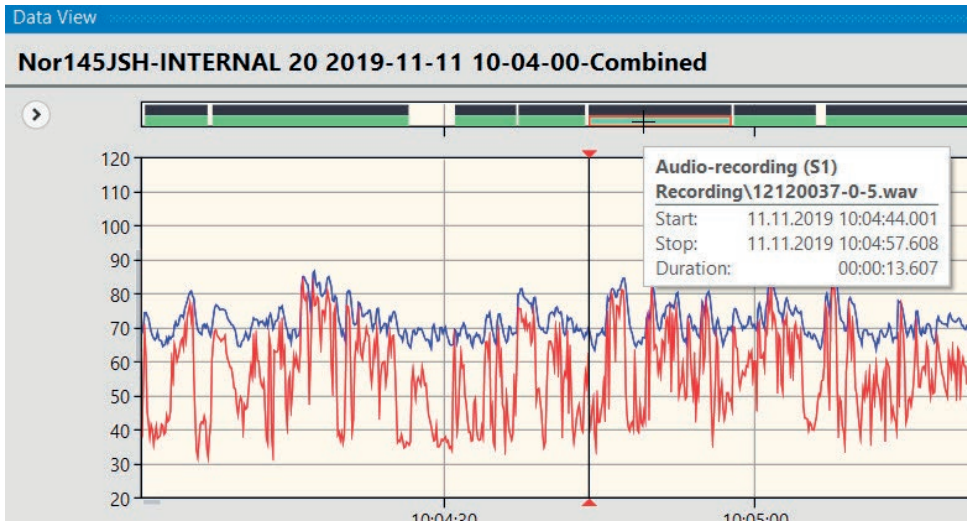


Figure 3.12

### Calibrated file

NorConnect gives the user the possibility to create a calibrated waveform file from the audio recordings you do with the Nor145 or Nor150 analysers.

A calibrated file enables you to have a verified absolute level for these audio recordings.

The level observed takes into account the parameters:

- microphone sensitivity
- preamplifier gain
- recording gain
- instrument specific absolute calibration

These parameters are stored in all measurements performed with the Nor150/Nor145

The user interface allows for 2 settings to select from, Uff or Wav:

Wave file: 32-bit float wave file with sample values corresponding to sound pressure levels in Pascal. Playback in a regular media player will cause clipping for levels above 94 dB SPL peak.

UFF: Universal file format 58b with 64-bit double values. This format is in use for some larger systems, especially in the automotive industry.

Note: The sampling rate for the audio recording format from a Nor145 or Nor150 can be set to either 12KHz or 48KHz. 12 kHz recordings has +- 2 dB ripple in pass-band due to decimation. Please use 48 kHz for accurate levels.

### Making a calibrated file

First, decide which format you want to use.

This is done by clicking the Norsonic logo as shown in figure 3.13

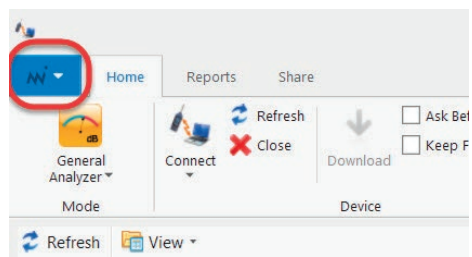


Figure 3.13

Then choosing the “Options” menu (Figure 3.14)..

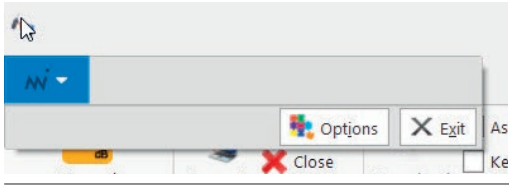


Figure 3.14

Last select whether you want to store the file in Uff or Wav format (Figure 4.15).

Proceed to open the “General Analyser” measurement you want to work with

Then make a “Graph view” and select the audio marker you want to process. If many, it may help to zoom in first.

Right click on the marker and select “Create Calibrated File” as shown in Figure 3.16.

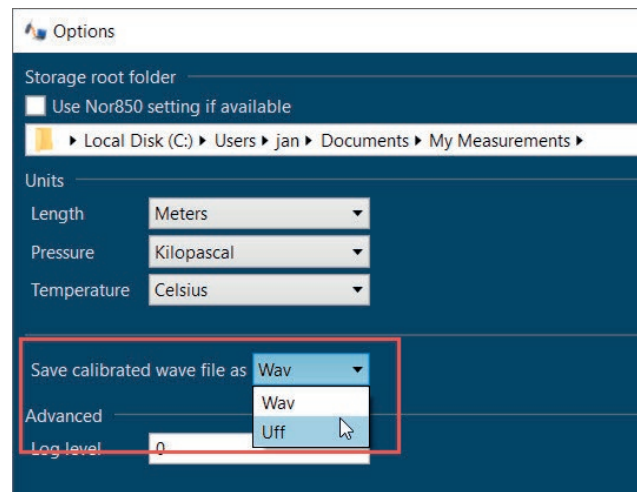


Figure 315

This will prompt you to store the file on your computer. Choose the location you want to have the file and push “Save” (Figure 3.17)

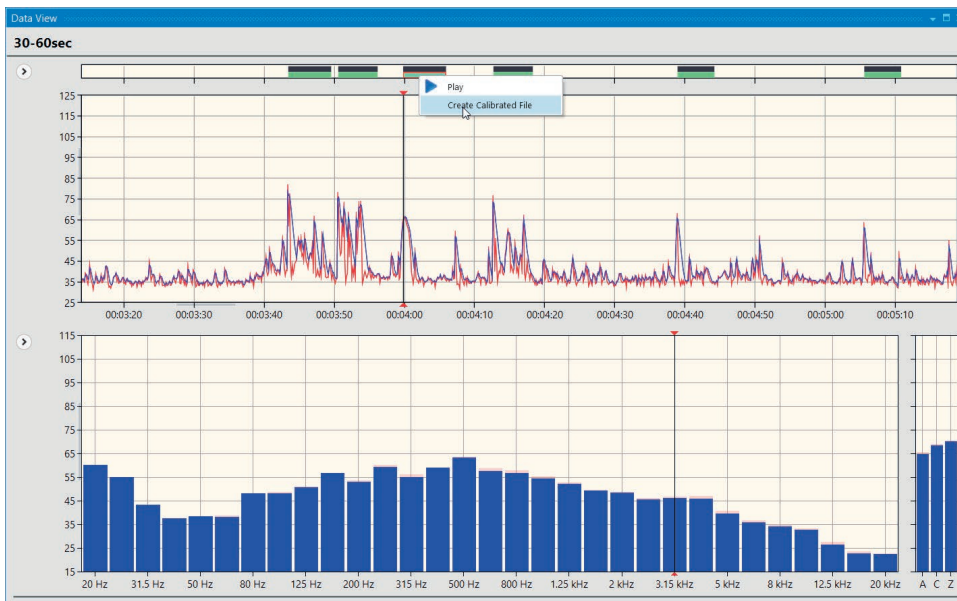
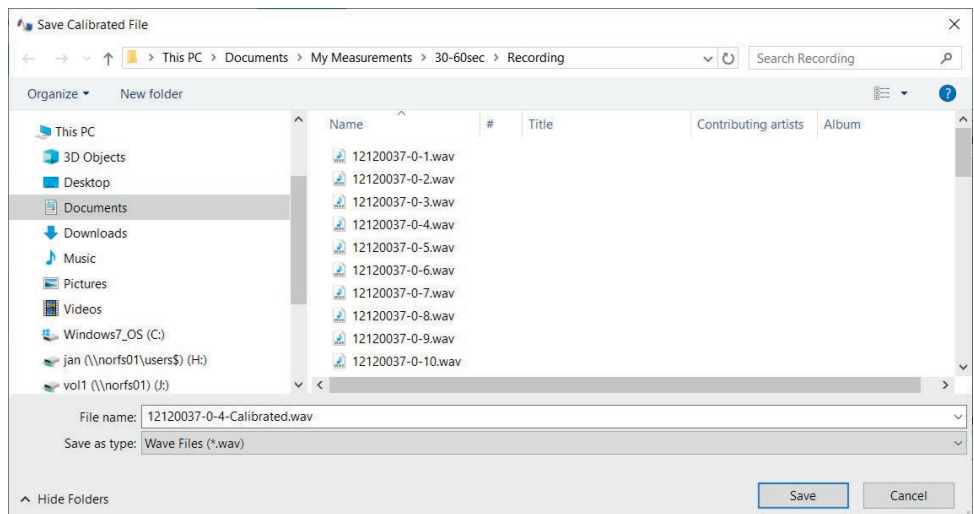


Figure 3.16

Figure 3.17



### Choose/add function in general view

To select which measured parameters to display in the L(t) graph, use Choose/add function.

Other functions may be added. Just click the green + sign (Figure 3.18). Select among available functions.


 HINT! You can “dock” this window conveniently to a specific location.



Figure 3.18

Right-click function to change colour and style (Figure 3.19).

To remove a function, just click the function name and press Delete.

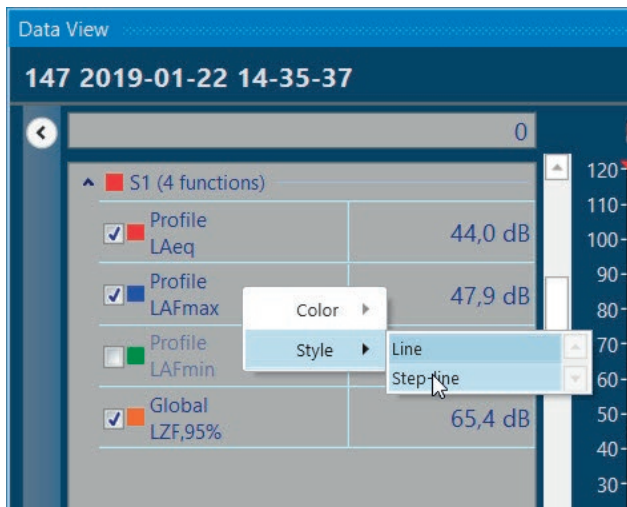


Figure 319

In addition to General Analyser files the viewer also works for files of type:

- Building Acoustics (Nor145/Nor150) - Figure 3.20
- Sound Intensity (Nor150 2 ch) - Figure 3.21
- Sound Power (Nor850) - Figure 3.22


 Please note that to do any advanced analysis you need to use the post-processing tools Nor850 or NorReview.



Figure 3.20



Figure 3.21

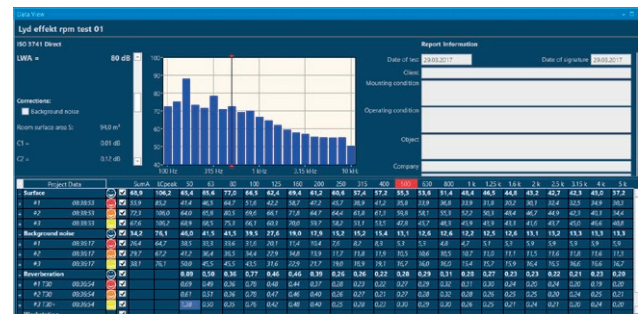


Figure 3.22



## Vibration data

It is now possible to display linear units and have a logarithmic Y-axis, which makes it easier to interpret vibration data, ie. acceleration ( $m/s^2$ ) or (velocity)  $mm/s$ :

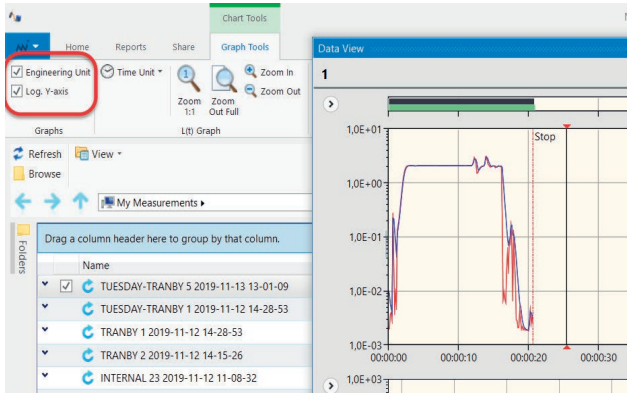


Figure 3.23

Sometimes FFT analysis is handy to use, eg. for rotational ie. rpm dependent problems where you may want to look at the vibration data at a specific frequency.

We can of course then combine the possibilities to show the vibration results, for example from an accelerometer in  $m/s^2$  or and then display this in the L(t) view - Figure 3.24.

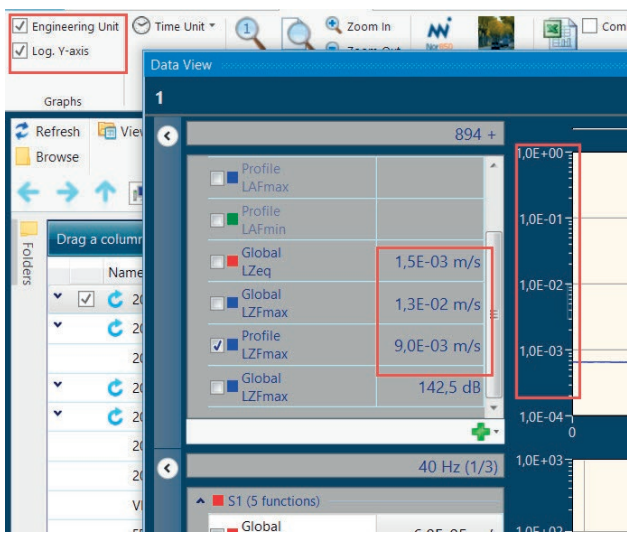


Figure 3.24

The information window for an example using a Nor1292 geophone (velocity measurements in  $m/s$ ). Figure 3.25.

<b>FFT</b>	
Resolution	1,46 Hz
<b>Sensors</b>	
<b>S1</b>	
Nor150	12137413
Vibration	Nor1292 (Serial No: 1292662)
Sensitivity	0,0 dB re. 1V/(m/s)
Preamplifier	

Figure 3.25

The resulting Excel report: Excel report with linear units - Figure 3.26..

	A	B	C
1	Name	1	S1
2	Start Time	02.09.2019 13:22:07	
3	Duration	00:02:06.000	
4			
5	LZeq	1,5E-03	m/s
6	LZFmax	1,3E-02	m/s
7			
8	<b>Band (1/3) Leq [m/s]</b>		
9	0.4 Hz	6,4E-04	
10	0.5 Hz	6,7E-04	
11	0.63 Hz	4,6E-04	
12	0.8 Hz	4,5E-04	
13	1 Hz	5,3E-04	
14	1.25 Hz	2,3E-04	
15	1.60 Hz	1,7E-04	
16	2 Hz	2,5E-04	
17	2.50 Hz	2,7E-04	
18	3.15 Hz	1,6E-04	
19	4 Hz	2,0E-04	
20	5 Hz	1,5E-04	
21	6.30 Hz	1,4E-04	

Figure 3.26

## Combine measurements

NorConnect offers a function called “Combine” to merge files onto which one can make an Excel Summary report.

It is now possible to combine measurements “freely”. Just pick any number of “Environmental mode” measurements, then hit “Combine”. When the process is finished you will be prompted to store this under a default name chosen.

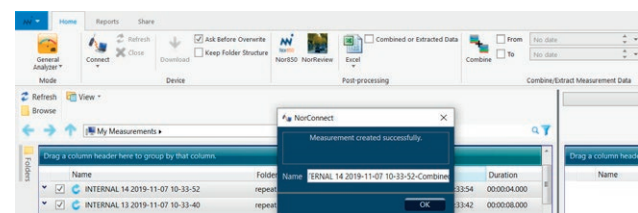


Figure 3.27

The program will try to make the best out of your selection, each file as a time segment combined with the next.

However, the usual procedure involves merging so called “Repeat”- or “Synchro” measurements taken with the Nor145 or Nor150. These are a result of the automated re-start of a new measurement after the former is finished, thereby making a string of consecutive numbered “equal” measurements grouped together under a common name. All individual files will be put into the same folder.

After transfer to the PC, the Blue symbol aside the file name indicates that this is a Repeat- or Synchro measurement.

This file type is generated by the instrument when it is set to any of the storage modes “Repeat” or “Synchro”, in which case an automatic restart of a new measurement follows the stopping and storing of the former. Each consecutive measurement with a certain Global duration and Profile resolution are stored as so called “Sub-measurements” as shown in figure 3.28.

Name	Folder	Start-time
8		28.11.2018 16:25:55
126 2018-11-28 16-25-54		
Sub-measurements		
Name	Start-time	
1	28.11.2018 16:25	
2	28.11.2018 16:30	
3	28.11.2018 16:40	
4	28.11.2018 16:50	
5	28.11.2018 17:00	
6	28.11.2018 17:10	
7	28.11.2018 17:20	
8	28.11.2018 17:30	

Figure 3.28

You may have as many such “Sub-measurements” as you like and also combine any of these, although the usual way is to select files within a certain time period and then “Combine”.

PS! You may access the individual files by clicking small arrow to the left of the measurement name, then select one of the “Sub-measurements”

You can also adjust the start- and stop-time of your selection of files to combine. This can be done by setting a new date/time as shown in figure 3.29.

The same is possible from working in the graphical view.as shown below. Simply mark the time interval to make a new measurement file.

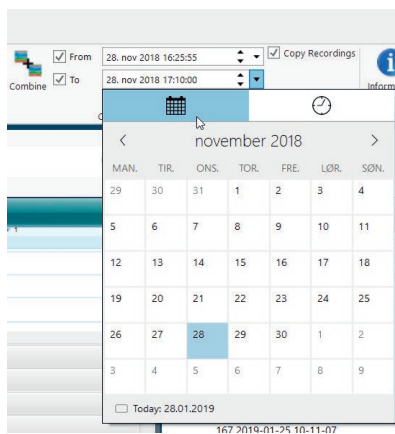


Figure 3.29

There is also a possibility to select the functions you want to include when using the Combine function.

Select files, then click the symbol marked by the red arrow in figure 3.30.

Pls. note that when the “Combine” function is used there is no Global or FFT data. the exception being for Synchro/Global measurements with only one measurement done

This only works for Profile part of the measurement.

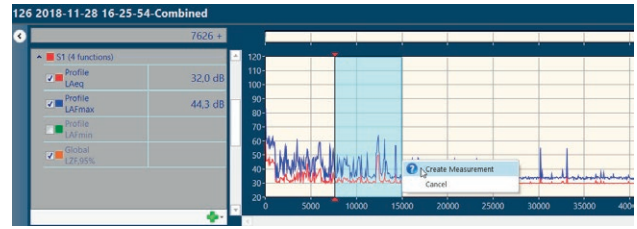


Figure 1.26

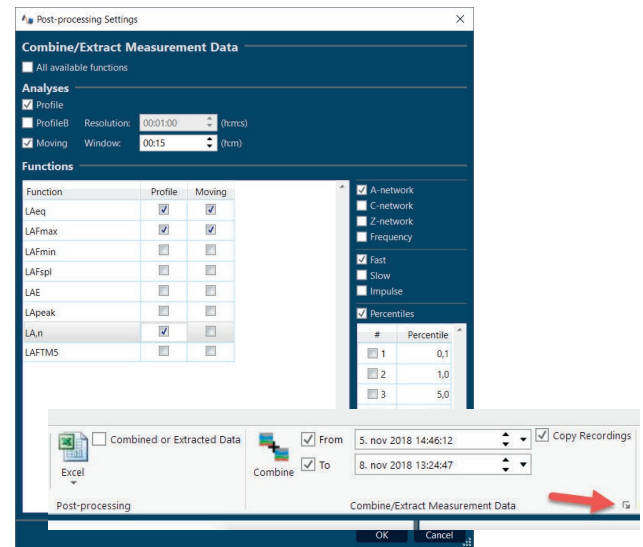


Figure 3.30

Please also note that only data available from the instrument will be available for Profile B and Moving. Handling of frequency data is not yet implemented for Profile B. If you have selected this, the resulting Excel report will be empty.

# Making reports

## Excel

Further to the possibilities in the “Graph view”, there are basic reports in Excel format easily at hand, as well as more sophisticated templates and direct access to Nor850 and NorReview functions (if installed).

To make a simple report containing all the data measured simply click the file or files you want to use, then click the Excel button to select one of the available templates, or the arrow just below the Excel button, then “Overview”.

Using the “Overview” function will be the simplest way of extracting all data from the measurements and into an Excel sheet specific for the instrument file type. Different Excel report examples are listed later in this chapter.

The measurement results are found in tabs as Global- and profile values. One report sheet for each channel and measurement part eg. Global and Profile (and Moving if measured) as shown.

## Making Excel reports

There are several possible reports

1. Gen. Mode: advanced possibilities with either self-made or customized templates, latter as included in installation.

Click the Excel icon and choose among the reports available.

2. All modes: Overview report. These are “hardcoded”, ie. not from a template.

Please note that for “general analyser” measurements you have to click the “down-arrow” below the Excel icon to start this function (Figure 4.1).

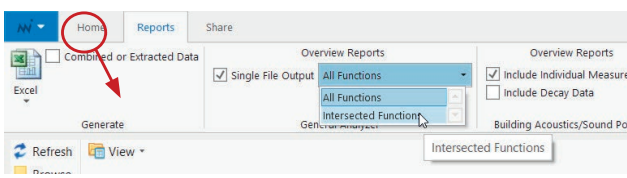


Figure 4.1

There are also different naming conventions for reports

1. Overview: filename + report date.
2. Using a report template there are 2 different versions:

Multiple-file where the template name is followed by the report date and Single-file templates having various naming conventions.

If you use “intersected functions” (Figure 4.2) across a selection of multiple measurements, you will get a report containing the values for parameters found in only files with similar functions.

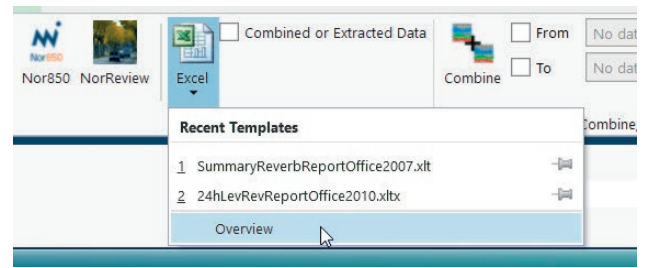


Figure 4.2

You can also make your own customized reports based on Excel templates with NorReport.

“Include Decay data” function (fig. 5.3) enables you to store the time data also in Reverberation measurements. See example Excel sheet in Figure 5.4. The T1 time, ie. “start time of RT calculation”, is conveniently listed in each frequency column.

These reports contains all the measured data. See examples shown in figure 4.5.

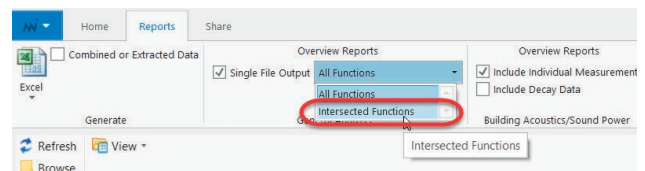


Figure 4.3

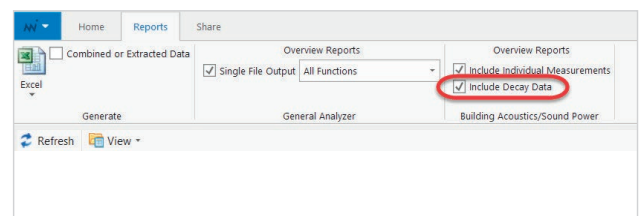


Figure 4.4

1	TEST 77 2017-01-11 14-03-04	S1							
2	LAEq	61,2							
3	LAFmax	74,9							
4	LAFmin	36,0							
5	LAE	76,4							
6	LApEak	86,4							
7	LAF,1%	71,5							
8	LAF,5%	65,6							
9	LAF,95%	41,9							
10	LCeq	66,8							
11	LCFmax	80,2							
12	LCFmin	54,1							
13	LCE	87,2							
14	LCpeak	9							
15	LCF,1%	7							
16	LCF,5%	7							
17	LCF,95%	5							
18	LZeQ	7							
19	LZFmax	8							
20	LZFmin	6							
21	LZE	8							
22	LZpeak	9							
23	LZF,1%	7							
24	LZF,5%	7							
25	LZF,95%	6							
26	Frequency (1/3)	Leq							
28	20 Hz	5							
29	25 Hz	5							
30	31.5 Hz	4							
31	40 Hz	4							
32	50 Hz	4							
33	63 Hz	41,1	34,9	56,3	45,5	44,1	37,3		
34	80 Hz	41,2	55,9	29,6	56,4	52,3	48,4	32,8	
35	100 Hz	37,7	57,5	33,1	50,0	54,0	51,5	35,9	

Figure 5.5

Excel reports (Profile and Global) with vibration data in linear units. Figure 4.6 and Figure 5.7.

B3				14.11.2019 11:00:35				
1	1	76	S1					
2	18		Markers	LZFsp1 [m/s2]	Lfeq 0.4 Hz (1/3) [m/s2]	Lfeq 0.5 Hz (1/3) [m/s2]	Lfeq 0.63 Hz (1/3) [m/s2]	Lfeq 0.8 Hz (1/3) [m/s2]
3	0	14.11.2019 11:00:34,649		3,10E-03	2,50E-04	1,70E-04	1,1	
4	1	14.11.2019 11:00:35,649		3,80E-03	2,50E-04	3,60E-04	2,4	Name 1 S1
5	2	14.11.2019 11:00:36,649		3,60E-03	2,60E-04	3,60E-04	2,6	Start Time 14.11.2019 11:00:34
6	3	14.11.2019 11:00:37,649		4,90E-03	3,00E-04	3,70E-04	1,9	Duration 00:00:17.000
7	4	14.11.2019 11:00:38,649		1,80E-01	3,30E-04	3,80E-04	8,7	LZeQ 8,3E-02 m/s2
8	5	14.11.2019 11:00:39,649		5,30E-02	2,90E-04	3,70E-04	7,9	LZFmax 3,3E-01 m/s2
9	6	14.11.2019 11:00:40,649		1,10E-01	2,30E-04	3,20E-04	1,9	
10	7	14.11.2019 11:00:41,649		1,20E-01	2,00E-04	2,50E-04	2,3	Band (1/3) Leq [m/s2] LFmax [m/s2]
11	8	14.11.2019 11:00:42,649		2,10E-01	1,70E-04	1,30E-04	3,1	0.4 Hz 4,9E-03 1,5E-02
12	9	14.11.2019 11:00:43,649		1,30E-01	3,20E-04	3,30E-04	1,2	0.5 Hz 6,0E-03 1,6E-02
13	10	14.11.2019 11:00:44,649		4,00E-02	1,10E-03	1,80E-03	4,0	11 0.63 Hz 6,3E-03 1,6E-02
14	11	14.11.2019 11:00:45,649		1,20E-02	2,90E-03	4,40E-03	6,6	12 0.8 Hz 5,2E-03 1,4E-02
15	12	14.11.2019 11:00:46,649		6,40E-03	5,30E-03	7,30E-03	1,0	13 1 Hz 4,5E-03 1,3E-02
16	13	14.11.2019 11:00:47,649		1,20E-02	6,80E-03	9,80E-03	1,3	14 1.25 Hz 4,3E-03 1,3E-02
17	14	14.11.2019 11:00:48,649		1,30E-02	7,80E-03	1,10E-02	1,2	15 1.60 Hz 1,7E-03 5,3E-03
18	15	14.11.2019 11:00:49,649		1,00E-02	1,00E-02	1,20E-02	9,6	16 2 Hz 4,7E-03 1,5E-02
19	16	14.11.2019 11:00:50,649		9,40E-03	1,20E-02	1,10E-02	8,8	17 2.50 Hz 5,1E-03 2,0E-02
20	17	14.11.2019 11:00:51,649	Stop	1,80E-02	1,30E-03	1,50E-02	9,9	18 3.15 Hz 4,9E-03 1,6E-02
								19 4 Hz 8,0E-03 3,3E-02
								20 5 Hz 6,2E-03 2,4E-02
								21 6.30 Hz 4,3E-03 2,1E-02
								22 8 Hz 5,0E-03 2,9E-02
								23 10 Hz 9,0E-03 5,8E-02
								24 12.5 Hz 1,1E-02 7,5E-02
								25 16 Hz 6,5E-03 4,0E-02
								26 20 Hz 7,4E-03 2,9E-02
								27 25 Hz 2,7E-02 8,5E-02
								28 31.5 Hz 2,6E-02 1,2E-01
								29 40 Hz 1,0E-02 4,5E-02
								30 50 Hz 1,4E-02 1,1E-01
								31 63 Hz 1,5E-02 7,7E-02
								32 80 Hz 1,3E-02 7,1E-02
								33 100 Hz 1,3E-02 6,9E-02
								34 125 Hz 1,3E-02 4,8E-02
								35 160 Hz 7,4E-02 1,0E-01



Figure 4.6

Figure 4.7

“Noise Compass” data

The results from the “Noise Compass” (Nor1297) for the functions horizontal- and vertical angle and quality indicator, are also exported to the Overview Excel report in a separate tab as part of the Profile data. See Figure 4.8

If the measurements include FFT data these are reported as follows (Figure 4.9)

 Figures show only low- and high ends of the frequency range  


A	B	C	D	E	F	G	H
Nor145-JSH 2019-12-09 1100-1200	6	Nor1297 (192.168.12.57-0)					
3600	Markers	L <sub>Aeq</sub> [dB]	L <sub>A</sub> Fmax [dB]	Horizontal angle [°]	Vertical angle [°]	Quality []	
0	09.12.2019 11:00:00,002						
1	09.12.2019 11:00:01,002		39,7	43,1	135	-35,3	0
2	09.12.2019 11:00:02,002		39,6	43,1	135	-35,3	0
3	09.12.2019 11:00:03,002		39,6	43,1	135	-35,3	0
4	09.12.2019 11:00:04,002		39,7	44,1	135	-35,3	0
59	09.12.2019 11:00:59,002		40,2	53,2	135	-35,3	0
60	09.12.2019 11:01:00,002		40,3	54,2	135	-35,3	0
61	09.12.2019 11:01:01,002		40,5	57,3	228,8	6,4	0,51
62	09.12.2019 11:01:02,002		41,1	57,3	217,3	7,1	0,48
63	09.12.2019 11:01:03,002		41,1	57,3	135	-35,3	0
64	09.12.2019 11:01:04,002		53,7	87,6	135	-35,3	0
65	09.12.2019 11:01:05,002		53,6	87,6	135	-35,3	0
66	09.12.2019 11:01:06,002		53,6	87,6	135	-35,3	0
67	09.12.2019 11:01:07,002		53,5	87,6	135	-35,3	0
68	09.12.2019 11:01:08,002		54,8	87,6	105,7	-41,3	0,42
69	09.12.2019 11:01:09,002		54,8	87,6	135	-35,3	0
70	09.12.2019 11:01:10,002		54,7	87,6	135	-35,3	0
71	09.12.2019 11:01:11,002		54,6	87,6	135	-35,3	0
72	09.12.2019 11:01:12,002		54,6	87,6	135	-35,3	0
73	09.12.2019 11:01:13,002		54,5	87,6	135	-35,3	0
74	09.12.2019 11:01:14,002		54,5	87,6	135	-35,3	0
75	09.12.2019 11:01:15,002		54,4	87,6	135	-35,3	0
76	09.12.2019 11:01:16,002		54,4	87,6	135	-35,3	0
77	09.12.2019 11:01:17,002		54,3	87,6	135	-35,3	0
78	09.12.2019 11:01:18,002		57	87,6	216,6	-20,2	0,49
79	09.12.2019 11:01:19,002		57,3	87,6	105,9	-21,8	0,54
80	09.12.2019 11:01:20,002		57,2	87,6	103,7	-24,8	0,47
81	09.12.2019 11:01:21,002		57,2	87,6	135	-35,3	0
82	09.12.2019 11:01:22,002		57,1	87,6	135	-35,3	0
83	09.12.2019 11:01:23,002		57,1	87,6	135	-35,3	0
84	09.12.2019 11:01:24,002		57,1	87,6	135	-35,3	0
85	09.12.2019 11:01:25,002		57,3	87,6	135	-35,3	0
86	09.12.2019 11:01:26,002		57,3	87,6	135	-35,3	0
S1-Global		S1-Profile		S1-Moving		S1-Periodic1	
		Nor1297 (192.168.12.57-0)-No.5					

Figure 4.9

Figure 4.9

	A	B	C	D
1	1	1	S1	
2	15016	Autospectrum [m/s]		
3	1,46 Hz	1,4E-03		
4	2,93 Hz	5,0E-04		
5	4,39 Hz	3,0E-04		
6	5,86 Hz	2,2E-04		
7	7,32 Hz	1,7E-04		
8	8,79 Hz	1,4E-04		
15004	21975,59 Hz	7,4E-06		,2E-04
15005	21977,05 Hz	7,4E-06		,0E-04
15006	21978,52 Hz	7,4E-06		,2E-05
15007	21979,98 Hz	7,1E-06		,2E-05
15008	21981,45 Hz	7,2E-06		,5E-05
15009	21982,91 Hz	7,7E-06		,0E-05
15010	21984,38 Hz	7,4E-06		,6E-05
15011	21985,84 Hz	7,4E-06		
15012	21987,30 Hz	7,4E-06		
15013	21988,77 Hz	7,2E-06		
15014	21990,23 Hz	7,1E-06		
15015	21991,70 Hz	7,1E-06		
15016	21993,16 Hz	7,1E-06		
15017	21994,63 Hz	7,4E-06		
15018	21996,09 Hz			
15019				
Report		FFT	Global	Profile
		Setup		

### Building Acoustics

There are also similar Excel reports for other file types, eg. Building Acoustics and Intensity (Nor150 2ch) as well as Sound Power, and so called “multipleProjects” made with the Nor850 system.

Please note that you may make your own templates to tailor specific needs. This is a very powerful feature using the built-in NorReport addition to the program. A complete guide to this is given in the description “NorReport usage”, also part of the NorConnect installation..

2CH COMPLETE (DIN 4109-4 HallRoom)																											
Band/Network (1/3)	Source	Source - (Pos #A)	Receiving	Receiving - (Pos #A)	Receiving - (Pos #B)	Receiving - (Pos #C)	Receiving - (Pos #D)	Background noise	Reverberation	Rating D	Rating D - (Pos #A)	Rating R'	Rating R' - (Pos #A)	Source - (Pos #A, #1 13:13:46)	Source - (Pos #A, #2 13:13:46)	Receiving - (Pos #A, #1 13:15:53)	Receiving - (Pos #A, #2 13:15:53)	Receiving - (Pos #B, #1 13:16:07)	Receiving - (Pos #B, #2 13:16:07)	Receiving - (Pos #C, #1 13:16:30)	Receiving - (Pos #C, #2 13:16:30)	Receiving - (Pos #D, #1 13:16:38)	Receiving - (Pos #D, #2 13:16:38)	Background noise - (#1 13:15:24)	Background noise - (#2 13:15:24)	Reverberation - (#1 T30+ 13:14:56)	Reverberation - (#2 T30+ 13:14:56)
A	93,7	93,7	28,6	28,6	28,7	28,6	28,7	37,9						87,6	96,2	27,7	29,3	27,8	29,4	27,8	29,4	27,9	29,4	36,9	38,7		
50 Hz	45,9	45,9	11,1	11,3	11,1	10,9	11,2	45,1		35,9	35,9			45,4	46,3	8,1	13,1	8,1	12,9	7,8	12,7	7,7	13,1	45,7	44,5		
63 Hz	51,1	51,1	-2,2	-2,3	-2,1	-2,4	-1,8	41,2		54,7	54,7			44,4	53,6	-3,1	-1,7	-2,9	-1,4	-2,7	-2,2	-2,5	-1,2	40,6	41,8		
80 Hz	66,0	66,0	-2,4	-2,0	-2,5	-2,5	-2,4	40,3	0,69	69,3	69,3	69,6	69,6	59,3	68,5	-2,2	-1,9	-3,0	-2,1	-3,0	-2,1	-2,3	-2,6	39,8	40,8	0,90	0,47
100 Hz	78,3	78,3	-1,6	-1,6	-1,3	-1,4	-2,0	47,0	0,83	81,2	81,2	82,3	82,3	70,4	80,9	-2,1	-1,1	-2,0	-0,7	-2,0	-0,9	-2,3	-1,7	47,0	46,9	1,35	0,31
-----																											
-----																											
2.5 kHz	83,5	83,5	19,3	19,3	19,4	19,3	19,3	24,7	0,16	65,5	65,5	59,5	59,5	77,2	86,0	18,5	19,9	18,6	20,1	18,4	20,0	18,5	20,0	19,8	27,0	0,15	0,16
3.15 kHz	81,4	81,4	20,7	20,5	20,7	20,7	20,7	22,3	0,19	62,2	62,2	56,9	56,9	75,9	83,7	19,6	21,3	19,8	21,5	19,8	21,5	19,9	21,4	16,4	24,7	0,19	0,19
4 kHz	79,0	79,0	21,0	21,0	21,0	21,1	21,0	17,5	0,16	59,3	59,3	53,3	53,3	72,5	81,5	20,1	21,8	20,1	21,8	20,2	21,8	20,2	21,7	13,7	19,5	0,22	0,10
5 kHz	78,2	78,2	21,9	21,9	22,0	21,8	22,0	12,9	0,19	56,9	56,9	51,6	51,6	70,4	80,8	21,0	22,6	21,1	22,7	21,0	22,5	21,1	22,7	11,3	14,1	0,16	0,22
Weighted										69	69	64	64														
C										-1	-1	-2	-2														
Ctr										2	2	2	2														
C50-3150										-2	-2																
C50-5000										-6	-6																
C100-5000										-6	-6																
Ctr50-3150										-9	-9																
Ctr50-5000										-9	-9																
Ctr100-5000										-1	-1																

Figure 4.10

**Intensity (applies to the Nor150 2 channel meter only)**

There are individual tabs for each segment as well as for the Total Surface and an Overview.

Project name	HEI
Date/time	02.12.2016 16:20:46
Standard	ISO 9614-2:1997
Accuracy	Engineering
Filter	1/3-octave, 20 Hz - 20 kHz
Weighted sum frequency range	50 Hz - 6.3 kHz
Excluded bands	None
Surface type	Cuboid
X	1,00 m
Y	1,00 m
Z	1,00 m
Total area	8,25 m <sup>2</sup>
Number of segments	8
Number of measured segments	6

Setup | Overview | Total surface | SurfaceFront | SurfaceTop | SurfaceBack | SurfaceLeft | SurfaceRight | Surface

Figure 4.11 - Intensity measurement report

Band/Network (1/3)	leq	Leq	Lw	Ld	Fpl	F+/-
A	101,8	101,7		111,0		-0,1 0,0
C	103,4	103,4		112,6		-0,1 0,0
Z	103,7	103,6		112,8		-0,1 0,0
20 Hz	89,6	89,6		98,8	19,7	0,0 0,0
25 Hz	89,7	89,7		98,8	22,1	0,0 0,0
31.5 Hz	89,7	89,7		98,9	28,8	0,0 0,0
40 Hz	89,7	89,7		98,9	25,0	0,0 0,0
50 Hz	89,7	89,7		98,9	36,2	0,0 0,0
63 Hz	89,7	89,7		98,9	27,7	0,0 0,0
---						
4 kHz	89,2	88,9		98,4	53,9	-0,3 0,0
5 kHz	88,8	88,3		98,0	59,7	-0,5 0,0
6.3 kHz	88,2	87,5		97,4	53,3	-0,8 0,0
8 kHz	87,3	85,9		96,4	52,2	-1,3 0,0
10 kHz	85,4	83,0		94,6	53,0	-2,4 0,0
12.5 kHz	80,9	76,3		90,1	59,7	-4,6 0,0
16 kHz	(-)	79,0	(-)	88,2	53,8	-3,3 0,0
20 kHz	(-)	74,6	(-)	83,8	51,4	-0,7 0,0

Setup | Overview | Total surface | SurfaceFront | SurfaceTop | SurfaceBack | SurfaceLeft

Figure 4.12 - Intensity report - Total surface

Surface	Area	leq	Lw
Total surface	8,25 m <sup>2</sup>	101,8	111,0
SurfaceFront	0,25 m <sup>2</sup>	101,0	95,0
SurfaceFront R1C1	0,25 m <sup>2</sup>	101,0	95,0
SurfaceTop	1,00 m <sup>2</sup>	105,4	105,4
SurfaceTop R1C1	1,00 m <sup>2</sup>	105,4	105,4
SurfaceBack	5,00 m <sup>2</sup>	101,0	108,0
SurfaceBack R1C1	4,00 m <sup>2</sup>	101,0	107,0
SurfaceBack R2C2	1,00 m <sup>2</sup>	101,0	101,0
SurfaceLeft	1,00 m <sup>2</sup>	101,0	101,0
SurfaceLeft R1C1	1,00 m <sup>2</sup>	101,0	101,0
SurfaceRight	1,00 m <sup>2</sup>	101,0	101,0
SurfaceRight R1C1	1,00 m <sup>2</sup>	101,0	101,0

Setup | Overview | Total surface | SurfaceFront | Surface

Figure 4.13 - Intensity report - Overview

It is also possible to make reports for measurements done with the Nor850 systems.

Below (figure 4.14) is an example of the data Sound Power measurement.

Lyd effekt rpm test 01-MultiProject-1 (ISO 3741 Direct), 29.03.2017															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Band/Network (1/3)	Surface	Background noise	Reverberation	Workstation	Sound Power LW	Surface - (#1 08:38:53)	Surface - (#2 08:38:53)	Surface - (#3 08:38:53)	Background noise - (#1 08:36:17)	Background noise - (#2 08:36:17)	Background noise - (#3 08:36:17)	Reverberation - (#1 T30 08:36:54)	Reverberation - (#2 T30 08:36:54)	Reverberation - (#3 T30+ 08:36:54)	
2															
3	A	68,9	34,2		80,0	55,9	72,3	67,6	26,4	29,7	38,1				
4	LCpeak	106,2	76,1		106,2	85,2	106,0	106,2	64,7	67,2	76,1				
5	100 Hz	65,4	46,0	0,89	72,6	41,4	64,0	68,9	38,5	41,2	50,0	0,69	0,61	1,38	
6	125 Hz	65,6	41,5	0,50	75,3	46,5	65,8	68,5	33,3	36,4	45,5	0,49	0,51	0,50	
7	160 Hz	77,0	41,5	0,36	88,2	64,7	80,5	75,3	33,6	36,5	45,5	0,36	0,36	0,35	
8	200 Hz	66,5	39,5	0,77	73,4	51,6	69,6	66,1	31,6	34,4	43,5	0,78	0,78	0,76	
9	250 Hz	62,4	27,6	0,46	71,7	42,2	66,1	60,3	20,1	22,9	31,6	0,48	0,47	0,42	
10	315 Hz	69,4	19,0	0,46	78,5	58,7	71,8	70,0	11,4	14,8	22,9	0,44	0,46	0,48	
11	400 Hz	61,2	17,9	0,39	71,1	47,2	64,7	59,7	10,4	13,9	21,7	0,37	0,40	0,40	
12	500 Hz	60,6	15,2	0,26	72,7	45,7	64,4	58,2	7,6	11,7	19,0	0,28	0,26	0,25	
13	630 Hz	57,4	15,2	0,26	69,4	38,9	61,8	51,1	8,2	11,8	18,9	0,23	0,27	0,28	
14	800 Hz	57,2	15,4	0,22	70,1	41,2	61,3	53,5	8,3	11,9	19,1	0,22	0,21	0,23	
15	1 kHz	55,3	13,1	0,28	66,7	35,8	59,8	47,8	5,3	10,5	16,7	0,27	0,27	0,30	
16	1.25 kHz	53,6	12,6	0,29	64,7	33,9	58,1	45,7	5,3	10,6	16,0	0,29	0,28	0,29	
17	1.6 kHz	51,4	12,6	0,31	62,1	36,8	55,3	48,3	4,8	10,5	16,0	0,32	0,32	0,30	
18	2 kHz	48,4	12,2	0,28	59,6	33,9	52,2	45,9	4,7	10,7	15,4	0,31	0,28	0,26	
19	2.5 kHz	46,5	12,5	0,27	57,9	31,8	50,3	43,9	5,1	11,0	15,7	0,30	0,26	0,25	
20	3.15 kHz	44,8	12,6	0,23	57,2	30,2	48,4	43,3	5,3	11,1	15,9	0,24	0,25	0,21	
21	4 kHz	43,2	13,1	0,23	55,6	30,1	46,7	41,6	5,9	11,5	16,4	0,20	0,25	0,24	
22	5 kHz	42,7	13,2	0,22	55,3	32,4	44,9	43,7	5,9	11,6	16,5	0,24	0,20	0,21	
23	6.3 kHz	42,3	13,3	0,21	55,2	32,5	42,3	45,0	5,9	11,8	16,6	0,20	0,24	0,20	
24	8 kHz	43,0	13,3	0,23	55,3	34,9	40,3	46,6	5,9	11,6	16,6	0,19	0,25	0,24	
25	10 kHz	37,2	13,3	0,20	50,4	30,3	34,4	40,8	5,9	11,3	16,7	0,20	0,21	0,20	

Figure 4.14 - Sound Power



## NorReport

The templates provided in NorConnect are only a few and you may want to make additional reports specific to your own needs. For this reason we have made the NorReport user interface (.dll).

See the User Documentation for this included in the NorConnect installation, found in the same folder you have installed this.

## Edit templates

To simplify the process of making new templates, it is possible to “reuse” existing templates that has been used. Just click on the “Pencil symbol” as shown in Figure 4.15.

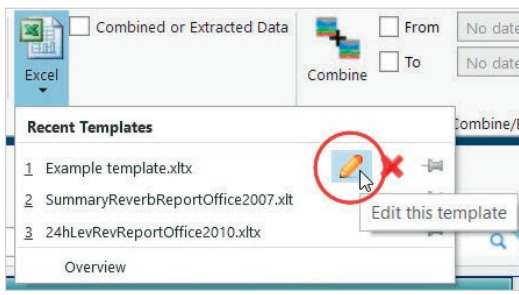


Figure 4.15

This will open the template in Excel and you can modify it and store under a new name in your chosen location PS! A simple way of adding data columns is to make new sheets and rename this, eg. like FFT and FFT2 as shown here in Figure 4.16.

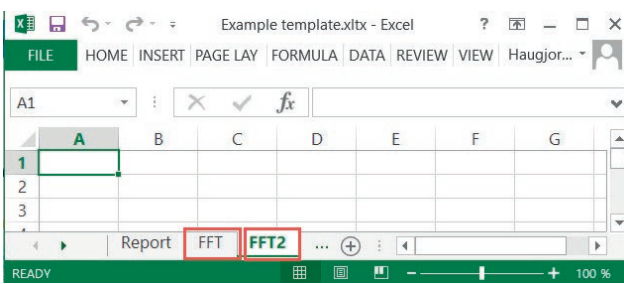


Figure 4.16

## Enhanced reports with Nor850 and NorReview

If you have installed the programs Nor850 and/or NorReview you may also use these directly from the menu line to post-process the measurements. Nor850 program can be used for building acoustics-, sound power- and intensity measurements, while NorReview is used for the category “General Analyzer” measurements - Figure 4.17.

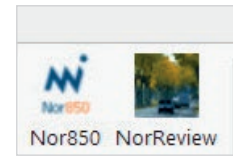


Figure 4.17

## Language selection

Select your preferred language. This is applied when the program is restarted (Figure 1.40).

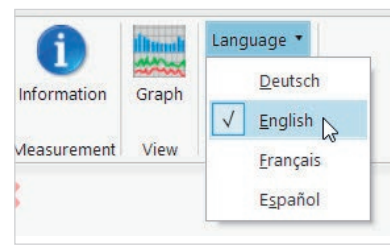


Figure 4.17

## Info

The reset button (Figure 4.18) is a useful tool to apply to reset to the default view properties.

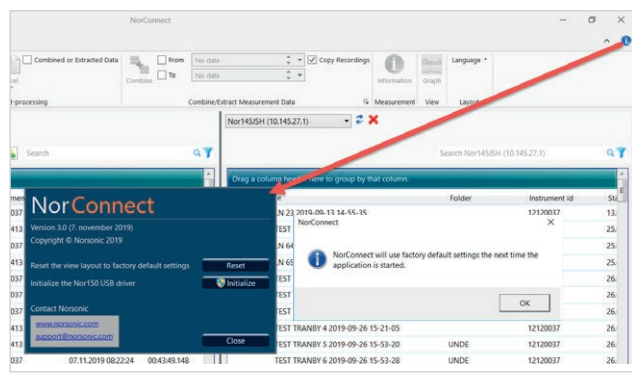


Figure 4.18







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