USER MANUAL ABOUT THE EXCEL TOOL ON THE STANDARD ISO 10816-3

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INTRODUCTION

The present manual helps FastTracer users to practice with the *ad hoc* Excel tool created by Sequoia IT according to the ISO 10816-3 standard. This tool is dedicated to all the customers dealing with vibrations of industrial machines.

Here follows some indications about the use of the FastTracer are given and the different functionalities of the report are explained in detail.

MEASUREMENT AND DATA SAVING

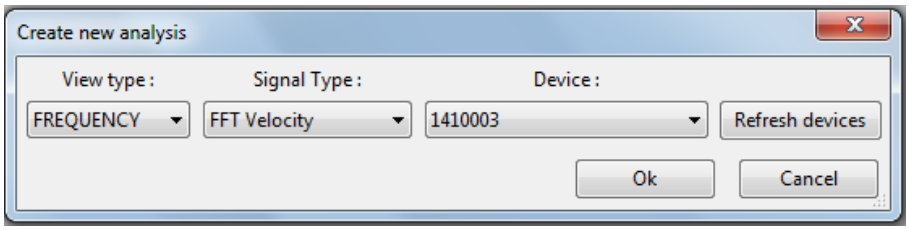
The FastTracer must be placed on a non-rotating part of the machine under study, keeping in mind that the report is based on the following choices:

- X-axis: axial direction
- Y-axis: tangential direction
- Z-axis: radial direction

Moreover, the measure must be managed by means of the FTAnalyzer, the software correlated with the FastTracer. Once it has been installed on the laptop, the following operations must be followed:

- Create a new acquisition with the command “New Analysis”

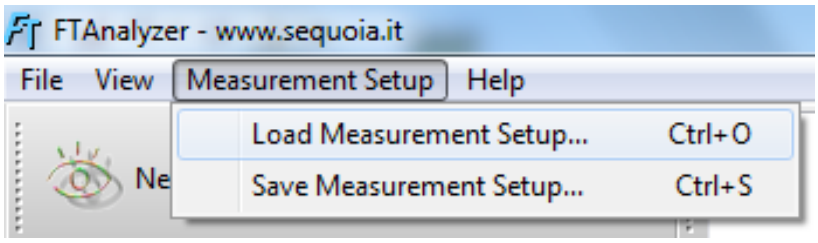
- Choose the frequency analysis “FFT Velocity”



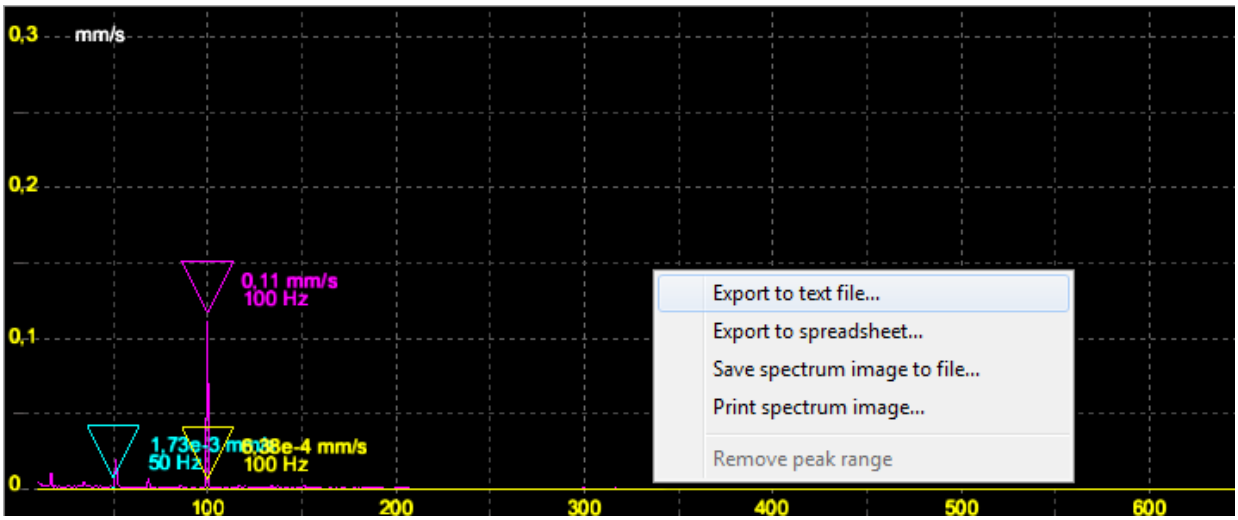
- In the main screen, the user must set the frequency band from 10 to 1000 Hz.

- Parallel, he can choose the desired frequency resolution and number of averages

The configuration adopted can be saved by means of the command “Save Measurement Setup” in the menu of the FTAnalyzer. This is very useful for successive tests, where it will be sufficient to load the configuration with the command “Save Measurement Setup”.



- Once obtained the FFT, it can be easily saved by using the right button of the mouse and then by selecting the command “Export to text file”.



THE REPORT STRUCTURE

The Excel report is divided in six sheets:

1. Main page
2. Characteristics of machines divided in groups according to ISO 10816-3
3. List of the user machines
4. DB test
5. Measurement data
6. Time series analysis

Since the main page resumes the results of the different parts of the report, it will be described later, parallel to the time series analysis.

MACHINE CHARACTERISTICS

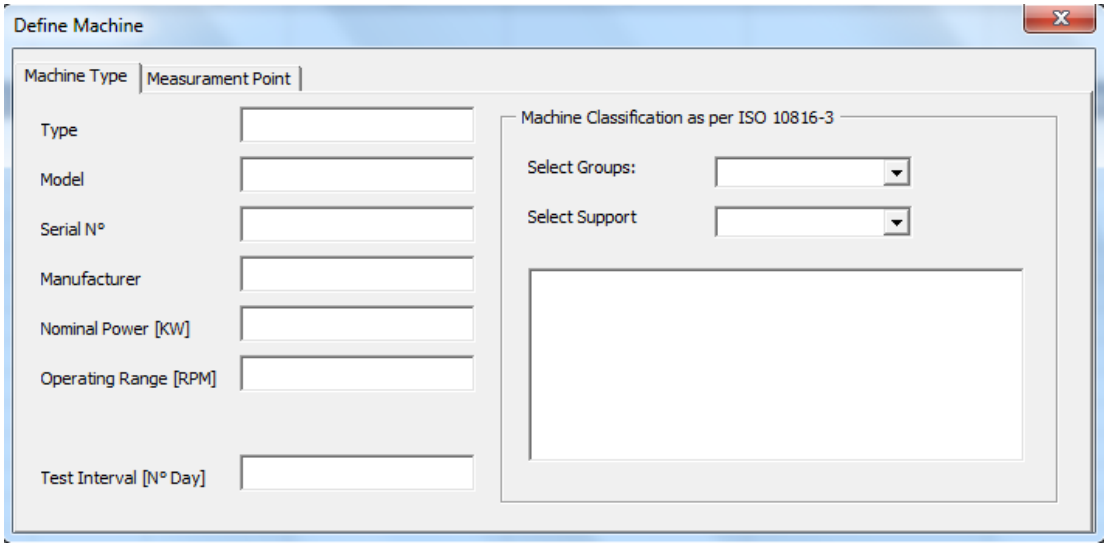
In this Excel sheet, the four machine groups defined in ISO 10816-3 are listed with a brief description. For each group, there is a further division among the machines with rigid and flexible supports.

LIST OF THE USER MACHINES

This sheet has a duplex function:

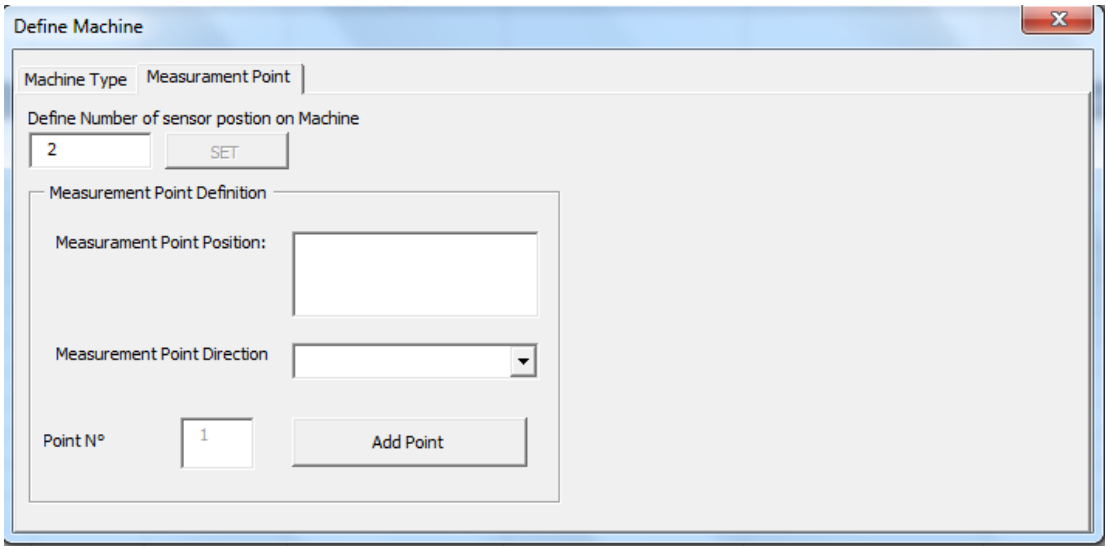
- Visualize all the machines already inserted
- Insert a new machine

In this second case, once pushed the button “Insert new machine”, a dedicated menu appears:



The user must insert the main machine characteristics (the serial number is fundamental) and, on the right side, the group and the support type, according to ISO 10816-3.

Successively, the user can define the number of sensors on the machine, together with a brief description and the measurement direction for each of them.



DB TEST

The DB test sheet gathers all the tests performed on the different user machines. The information shown is:

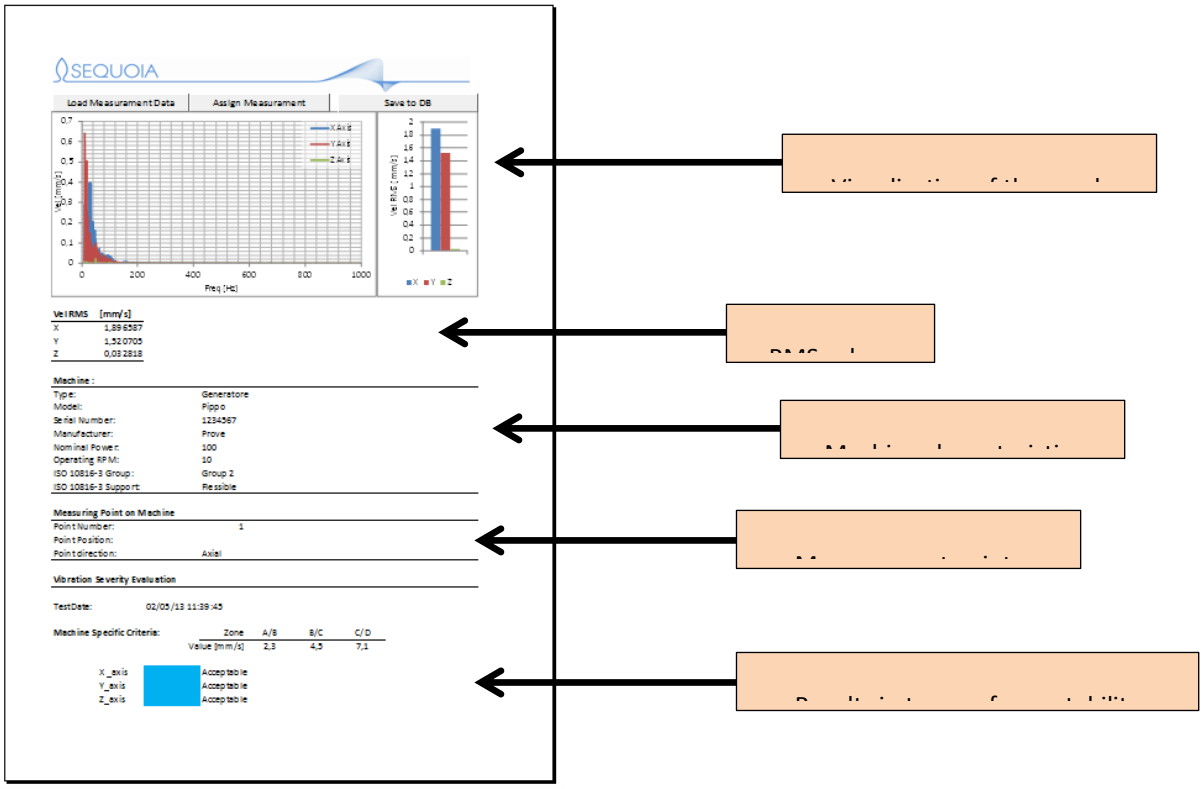
- Insertion number of the test
- Machine serial number
- Test date
- Point name
- RMS value
- Degree of acceptability according to ISO 10816-3

In this version of the Excel tool, the user is recommended to order the tests from the oldest to the newest. In such a way, the new tests are inserted at the bottom of the table.

MEASUREMENT DATA

In this section, all the data saved from the FTAnalyzer are collected. In particular, in addition to the main measurement information (device name, data sampling, frequency resolution, date), four columns are listed, referring to:

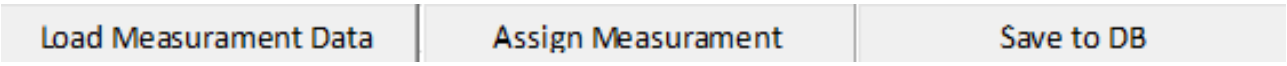
- frequencies from 10 to 1000 Hz
- FFT in velocity for the x-axis
- FFT in velocity for the y-axis
- FFT in velocity for the z-axis.



MAIN PAGE

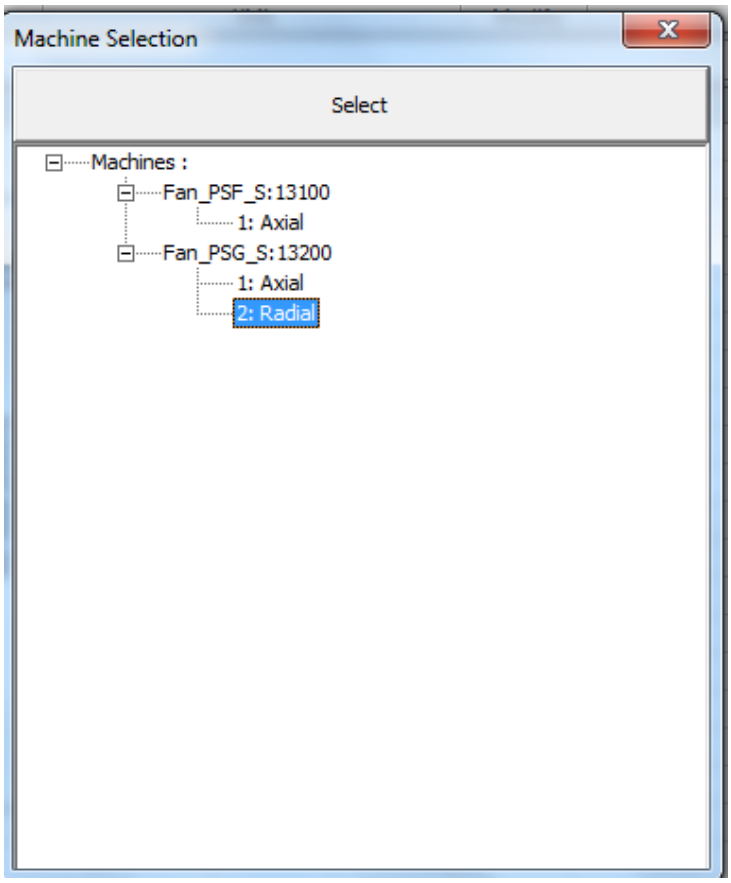
The main page of the Excel tool dedicated to the ISO 10816-3 is shown above.

The page is divided in many parts, starting from the three fundamental commands present in the upper part of the screen.



The command “Load Measurement Data” allows loading the desired FFT formerly saved from the FTAnalyzer.

The command “Assign Measurement” allows choosing the machine (among the machines previously saved on the database) and the measurement direction. Only if the latter has been selected, then the operation can be confirmed by means of the button “Select”.



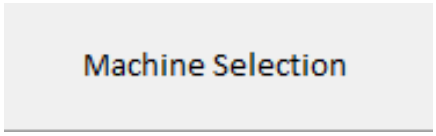
The command “Save to DB” allows saving a test in the DB test sheet.

At the end of the main page, there is a table defining the results in terms of acceptability (unacceptable, unsatisfactory, satisfactory or acceptable) for the three axes.

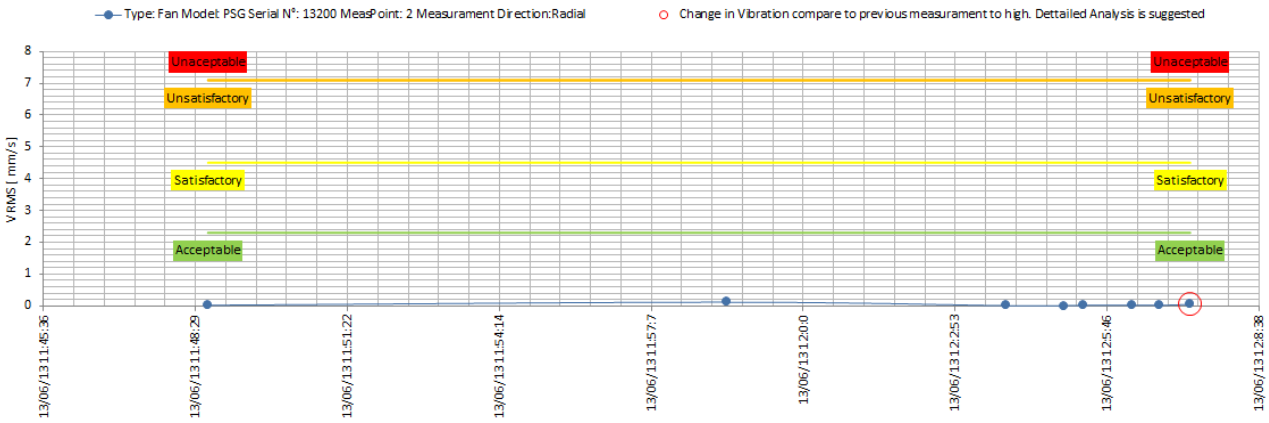
X _axis		Acceptable
Y_axis		Acceptable
Z_axis		Acceptable

TIME SERIES ANALYSIS

This part is dedicated to the temporal analysis of the tests on a certain point, for a specified machine. In particular, the choice must be done by pushing the button “Machine selection”.



A special menu, with all the user-defined machines, and their relative measurement directions, will be opened. The menu is analogous to that shown for the command “Assign Measurement” in the main page.

Once chosen the desired point, a graph is visualized with the values of RMS per each test done by the user. The values are compared with the thresholds defined by ISO 10816-3, so that it is simple to check which vibration tests can be considered unacceptable, unsatisfactory, satisfactory or acceptable.

Moreover, if the RMS of the last measurement has an increment of 25% respect to the previous one, then a red circle is depicted, in order to evidence a critical behavior of the machine.