Vibration Meter Guide

(iPhone/iPad/Android App Documentation)

Version 1.001

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Change History

Date	Version	Change
6.3.2025	1.001	Added an image showing measurement with an iPhone.

Date	Version	Change
28.2.2025	1.0	First release

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1 Introduction

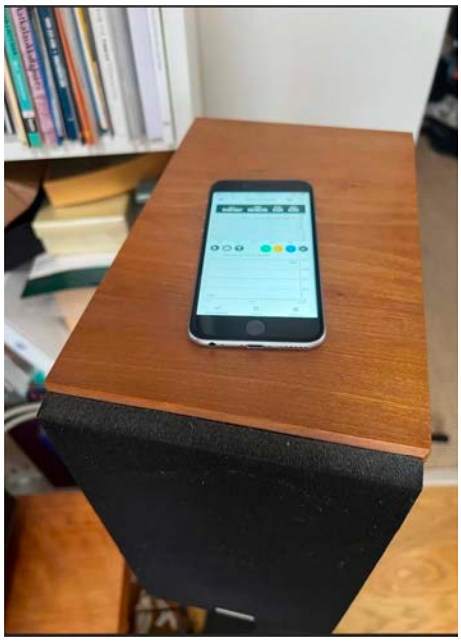
When using the Vibration Meter mobile app to measure vibrations, you can focus on measuring vibrations before and after adding dampers. This helps evaluate how effectively the dampers reduce vibrations.

2 Here are the step-by-step instructions:

1. Choose the right measurement point

   - Place the phone on a flat, stable surface, for example:
     - **On top of the speaker stand**: Measure vibrations directly near the speaker.
     - **On the floor near the speaker**: Measure vibrations through the floor.
     - **On the speaker cabinet (not recommended if the cabinet is unstable)**: If you want to investigate vibrations directly from the speaker cabinet, make sure the phone stays in place. For example, a reusable, non-marking nano tape can be used for this purpose.

   Tip: Keep the phone's position and orientation exactly the same in all measurements to ensure the results are comparable. In Figure 1, the speaker's vibration is measured with an iPhone.



Kuva 1: Measuring with an iPhone

2. Planning the measurement procedure

- Play **the same test signal** from the speakers in both measurements, for example:
  - A frequency sweep between 20 Hz and 200 Hz.
  - A single sine wave (e.g., 50 Hz or 100 Hz), which can highlight resonances.
  - Music with a clearly defined bass range.

Always use the same volume setting between measurements.

3. Measurement without dampers

   a) **Place the phone**: Choose the measurement point (e.g., speaker stand or floor).

   b) **Open the Vibration Meter app**: Activate the app and select real-time measurement by pressing the play icon.

   c) **Perform the test**: Play the test signal through the speakers and let the app measure the vibrations.

   d) **Save the results**: Save the measurement and its results (image or recording) and give it a clear name (e.g., "Without dampers").

   e) You can email the results from the History section by then tapping the CSV icon.

4. Measurement with dampers

   a) Add dampers under the speakers.

   b) **Repeat the measurement process exactly the same way as before**.

      - Keep the phone's position and the signal the same.

   c) **Save the results**: Name the measurement (e.g., "With dampers").

5. What to look for in the results?

   Vibration Meter typically provides the following values:

   - **Peak**: Shows the maximum intensity of the vibration.
   - **RMS (Root Mean Square)**: Describes the average vibration over time.
   - **Frequencies**: Observe how different frequencies (e.g., bass) affect the vibrations.

   Compare these values **without dampers and with dampers**:

   a) Do the peak values decrease?

      - A decrease means the dampers prevent vibration transmission to the surface.

   b) Does the RMS value decrease?

- A lower RMS means less continuous vibration.

c) Changes at certain frequencies:

- Bass frequencies (e.g., 20–200 Hz) may show the greatest changes if the dampers are effective.

6. Report and compare the results

- **Without dampers**: Higher vibration levels mean more resonance and greater transfer of vibrations to the surface.
- **With dampers**: Lower values indicate that the dampers reduce vibrations and isolate the speakers from the surface.

3 Tips for successful measurement

- Avoid external interference: Perform the measurement in a quiet environment without other vibration sources.
- Keep the volume the same: If the volume changes, the results are not comparable.
- Perform several measurements: You can compute an average from multiple measurements to ensure the results' reliability.

This way, you'll get a clear picture of how the dampers affect vibrations!