

# JANTZEN AUDIO

## Measuring Coils

### General advice:

At Jantzen Audio, we control measure all coils when we manufacture them, to make sure they keep within nominal tolerances on inductance (DCR figures follow inductance figures).

If you wish to control measure coils on your own, please note that you **cannot** correctly measure coils with a **hobby type “multimeter”**, if the coil in question has a lower DCR than around 0.1 ohms.

To measure coil data correctly, the equipment needs a certain level of resistance, to perform the measurements/calculations correctly.

We recommend using a **professional grade LCR / milliohm meter** (bridge), both for coils with an RDC of 0.1 ohm or lower, but also in general.

### Measuring C-Coils:

To correctly measure the inductance and DCR of C-Coils, you cannot use a professional grade LCR / milliohm meter (bridge) on its' own.

You will need to follow the steps of the measuring method mentioned in this guide.

We recommend using method 2, (Resonant Point with a Capacitor) described in the link below:

<http://daycounter.com/Articles/How-To-Measure-Inductance.phtml>

### **The measuring setup:**

A precision capacitor (e.g. one of our 1% tolerance Silver Z-Caps) is connected in parallel to the coil and a resistor in series connection (values are not important).

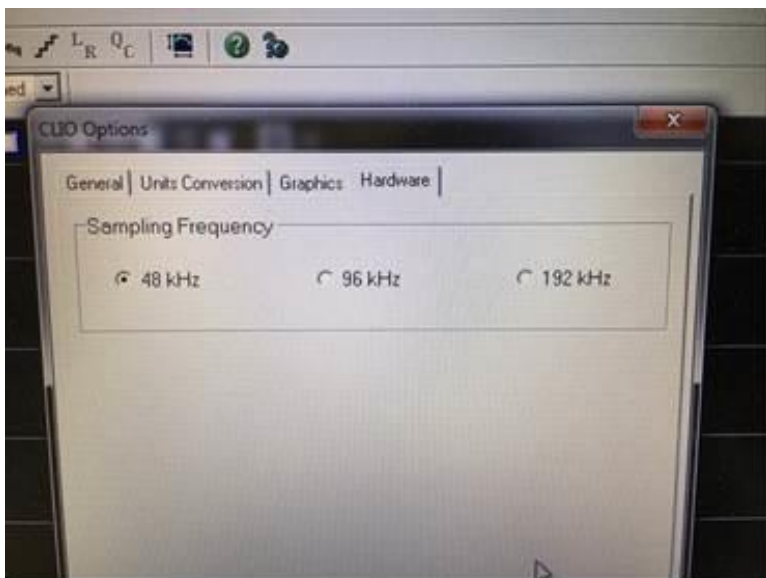
If you use CLIO to measure it must be set to 48 kHz sampling frequency and be rigged to impedance measuring (sinus function).

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Below is an example of what the measuring setup should look like:



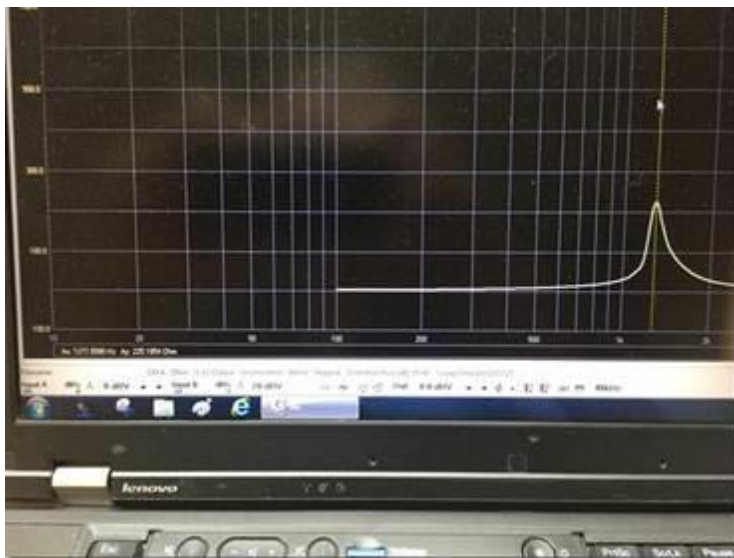
Then you do the impedance measurement, i.e. 100-5000 Hz, depending on the capacitors value (in this example a 5.6 uF was used).



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You measure i.e., 1.278 kHz resonance point and then insert them in the calculation schematic from the link below:

<http://daycounter.com/Articles/How-To-Measure-Inductance.phtml>



You will then get an inductance measurement within the 5% inductance tolerance.

can be performed to find the inductance.

$$L=1/(\omega^2 \cdot C)$$

The disadvantage with this method is that it's harder to find reference capacitors that have tolerances less than 10%.

Inductance Calculator		
C (Reference Resistor)	5.6	(uF)
F (Frequency when $V_{in}=V_L$ )	1.278	(KHz)
Results		
<input type="button" value="Compute"/>		
L	2769.431	(uH)

**Method 3 - Voltage Current Slope**

The last method is most complex and requires a that a pulsed voltage be placed across the inductor, and then the current is monitored. The duty cycle of the pulse should be below 50%. Also use a high frequency to avoid saturation. This req

**Please note that it should have said "reference capacitor" (C) in the photo above.**