

DATS V3 Computer Based Audio Component Test System



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Quick Overview

Dayton Audio has taken the most complete and easy-to-use audio test system and improved it in almost every way when creating the DATS V3 Computer Based Audio Component Test System. With improvements to the accuracy, capability, and reliability of the DATS V2, the DATS V3 sets a new standard for quick and accurate audio component measurements.

Product Highlights

- Rugged aluminum housing with detachable test leads and built-in precision calibration resistor
 - Tighter tolerances on internal components for more precise measurements
 - Increased output capability means greater separation from the noise floor, resulting in more accurate measurements
 - DATS Linearity Test for comparing parameters and impedance plots at multiple drive levels
 - Optional under desk mounting brackets included to save desk space
 - Only 1" H x 2-1/2" W x 4-1/8" D for easy portability
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Product Description

When designing the DATS V3 measurement device, Dayton Audio took everything customers love about the DATS V2 and improved upon the accuracy, capability, reliability, convenience, and flexibility.

Any engineer knows that valid and accurate data is crucial to great results. DATS (Dayton Audio Test System) V3 is the essential tool in any speaker designer's or audio engineer's toolbox, providing accurate, precise measurement data for any audio transducer or loudspeaker system. Save yourself time, money, and trial-and-error frustration by using DATS V3 to measure loudspeaker drivers, crossover networks, and complete audio systems!

DATS V3 is a unique, multipurpose test system that works with your PC and full-featured test software to measure the impedance response of a speaker driver and derive a complete set of Thiele/Small parameters that describe its operation. It's as easy as connecting a driver and starting the test! The DATS V3 measurement module provides the electrical stimulus to the driver, measures the driver's impedance on the fly, and then creates a high-resolution graph (30,000 data points!) with no additional hardware required.

What's better about Version 3?

From the outside, the DATS V3 has a completely updated look and feel. The extruded aluminum housing makes DATS V3 durable enough to throw into a toolbox without worrying about damage. In addition, optional mounting brackets give you the option to mount the DATS V3 under a desk or test bench to save space. No more searching for a calibration resistor, it is now integrated into the case, just clip the test leads onto the pins on the front of the housing and run the calibration. Also, the test leads have been upgraded to removable insulated banana plug test leads, giving you the ability to use your favorite test leads and easily replace damaged test leads (test leads are included). Finally, we have added a USB-B jack rather than an integrated USB cable (USB A to B cable included). This allows the cable to be quickly swapped if there is any damage, or if a different length is preferred.

The improvements continue on to the inside of the DATS V3. The internals have been completely redesigned and improved to deliver better accuracy and more power. With increased output power, the DATS V3 allows you to take measurements at a higher level to minimize the chance that a high noise floor or vibration could affect measurement results. Dayton Audio has also upgraded many of the internal components with tighter tolerances to minimize the margin of error that is caused by a component's value variance. Even the calibration resistor has been upgraded to 0.1% tolerance.

DATS V3 software is the true power of DATS. The included software not only measures impedance and parameters of speaker drivers with incredible accuracy, but the addition of the DATS Linearity Test gives you the ability to observe changes in parameters with differing drive levels. The Linearity Test automatically performs multiple sweeps of the driver at increasing (or decreasing) levels while saving each test result to memory making it easy to recall and compare the results. As always, the DATS V3 still has the capability to measure the true value of inductors, capacitors, and resistors, and it also works as a signal generator and scope to let you monitor small electrical signals (line-level only). Even more updates are planned to further set DATS V3 apart from the competition.

DATS V3 provides the following unique advantages:

- Rugged aluminum housing with detachable test leads and built-in precision calibration resistor
- Tighter tolerances on internal components for more precise measurements
- Linearity test allows you to easily observe shifting parameters with different drive levels
- Increased output capability for greater separation from the noise floor for more accurate measurements
- Optional under desk mounting brackets to save desk space
- Ultra-linear impedance response measurement for loudspeaker drivers and complete systems
- Accurate measurement of loudspeaker electromechanical parameters (F_s , Q_{ts} , V_{as} , and many more)
- Measurement of advanced Wright Model parameters (K_r , X_r , K_i , X_i) for precision simulations
- Precise, high-resolution impedance response measurements with 30,000 data points (1 Hz to 20,000 Hz)
- Save and compare up to 20 impedance graphs simultaneously within one test file
- Integrated quality control feature set provides pass/fail parameter measurement (QC Pack)
- Sensitive rub and buzz detection functionality reveals hidden flaws in individual drivers (QC Pack)
- Software signal generator with selectable waveform, frequency, and amplitude

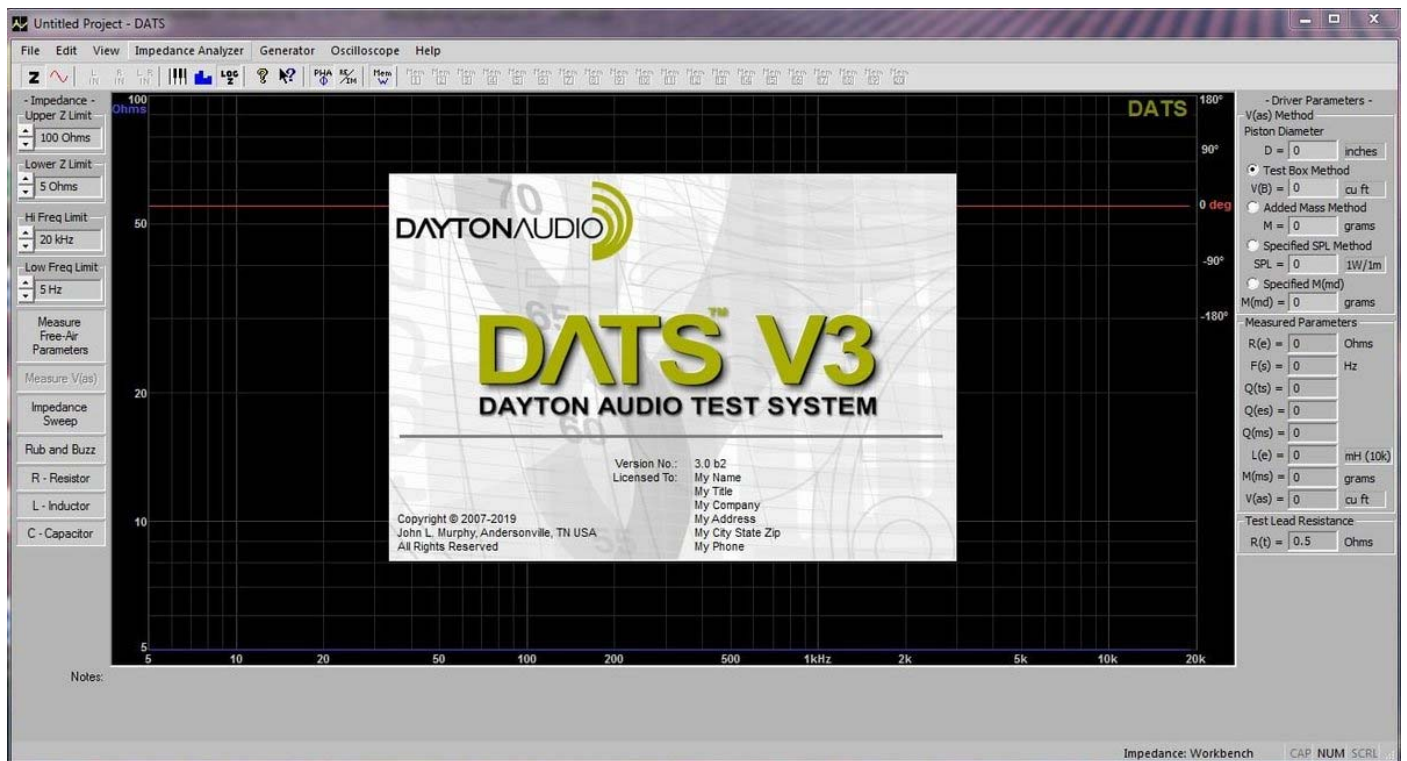
- Generates sine, square, triangle, saw tooth, impulse, pink noise, and log sweeps
- Oscilloscope software mode with dual traces, plus adjustable time and amplitude scales
- Oscilloscope and generator modes are compatible with other audio interfaces
- Quality test interface hardware assembled using precision SMT components and automation
- High-quality alligator clip leads minimize contact resistance for improved consistency
- Includes method for calculating Vas from specified Mmd
- Faster-than-ever hardware startup time virtually eliminates warm-up/cool-down

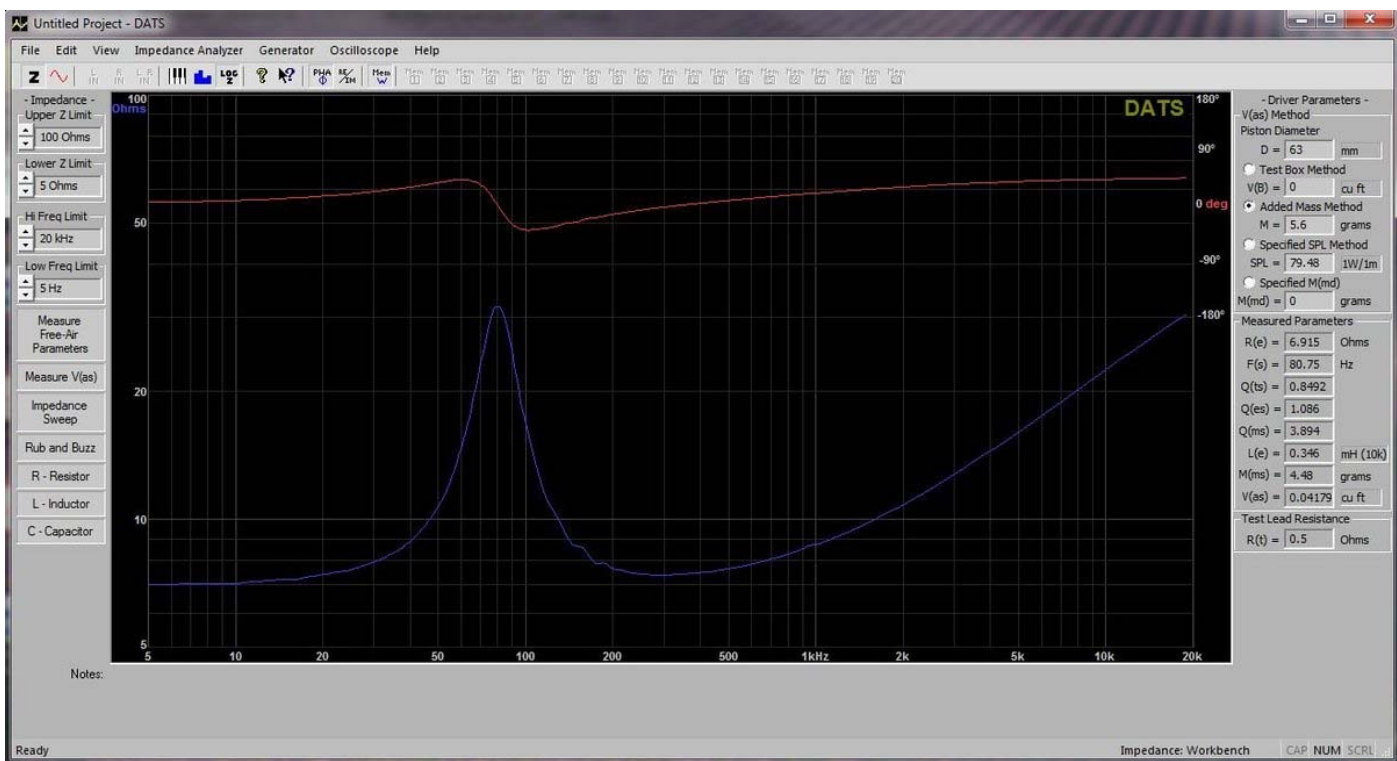
A solution like no other

DATS V3 is faster, more elegant, more versatile, and easier to use than any other speaker test & measurement device. Get ready for your designs to make a quantum leap, *thanks to better data!*

DATS V3 dimensions: 1" H x 2-1/2" W x 4-1/8" D

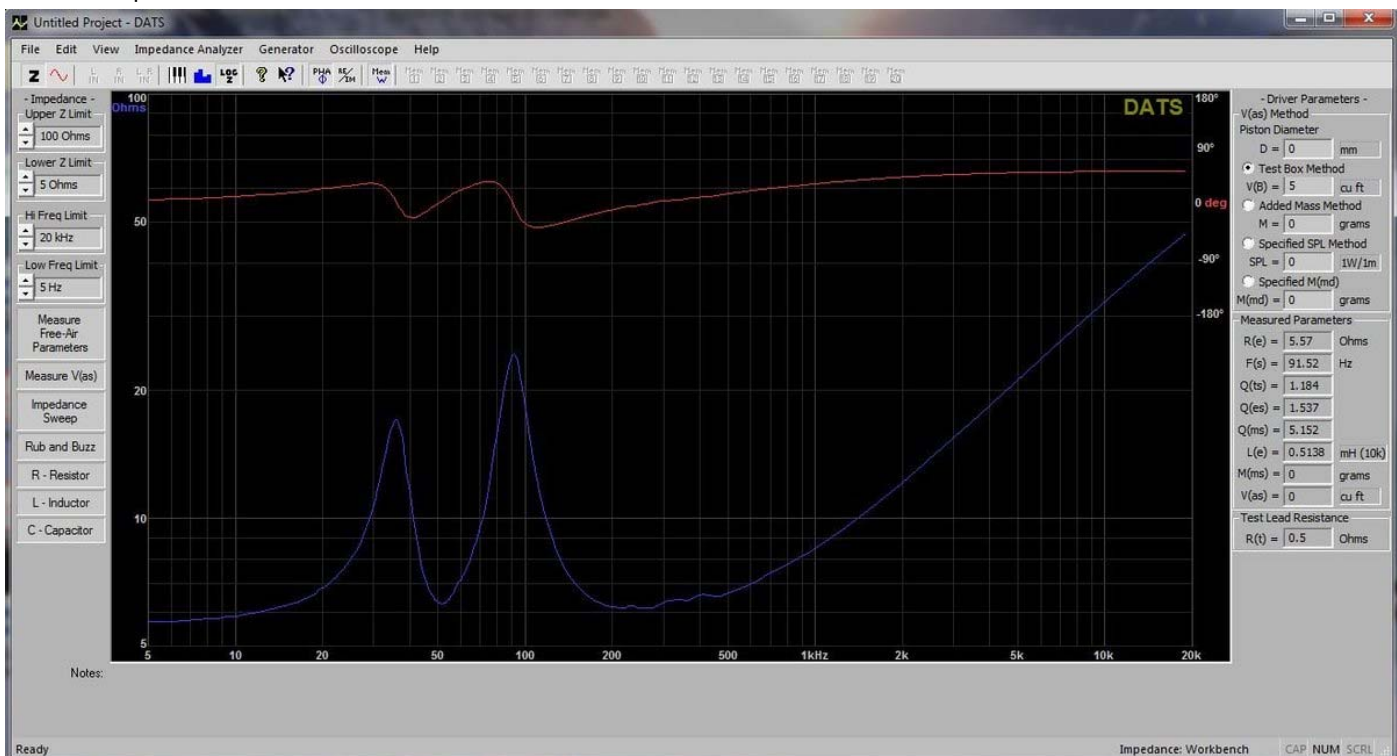
DATS V3 Software Features





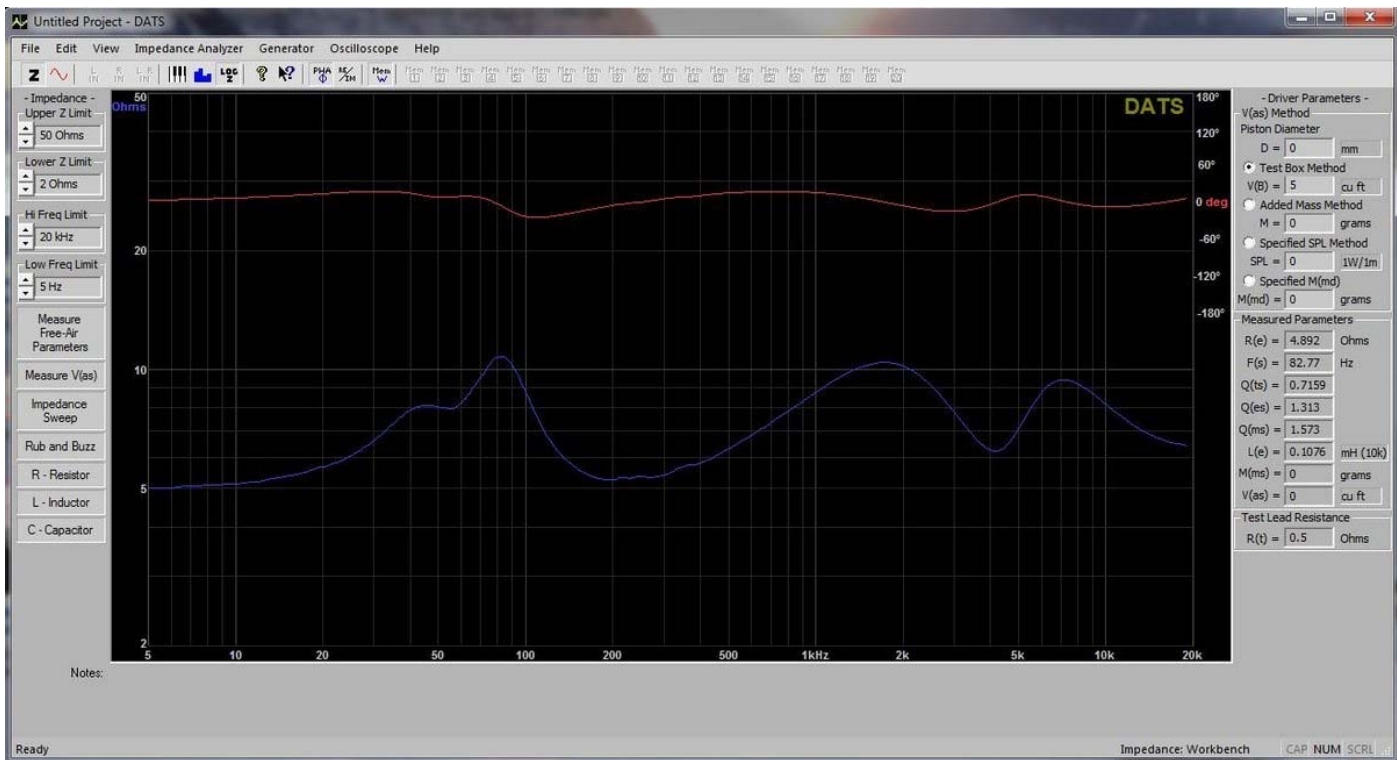
T/S Parameter Measurement

Quickly and accurately measure a driver's T/S parameters. Just attach the test leads directly to a driver's terminals and click "Measure Free-Air Parameters" and the impedance magnitude will be displayed on the graph along with the measured R_e , F_s , Q_{ts} , Q_{es} , Q_{ms} , and L_e . Next add mass to the cone or mount the driver in a suitable test box and click "Measure V(as)" to derive the mechanical parameters such as V_{as} and M_{ms} .



Enclosure Tuning Verification

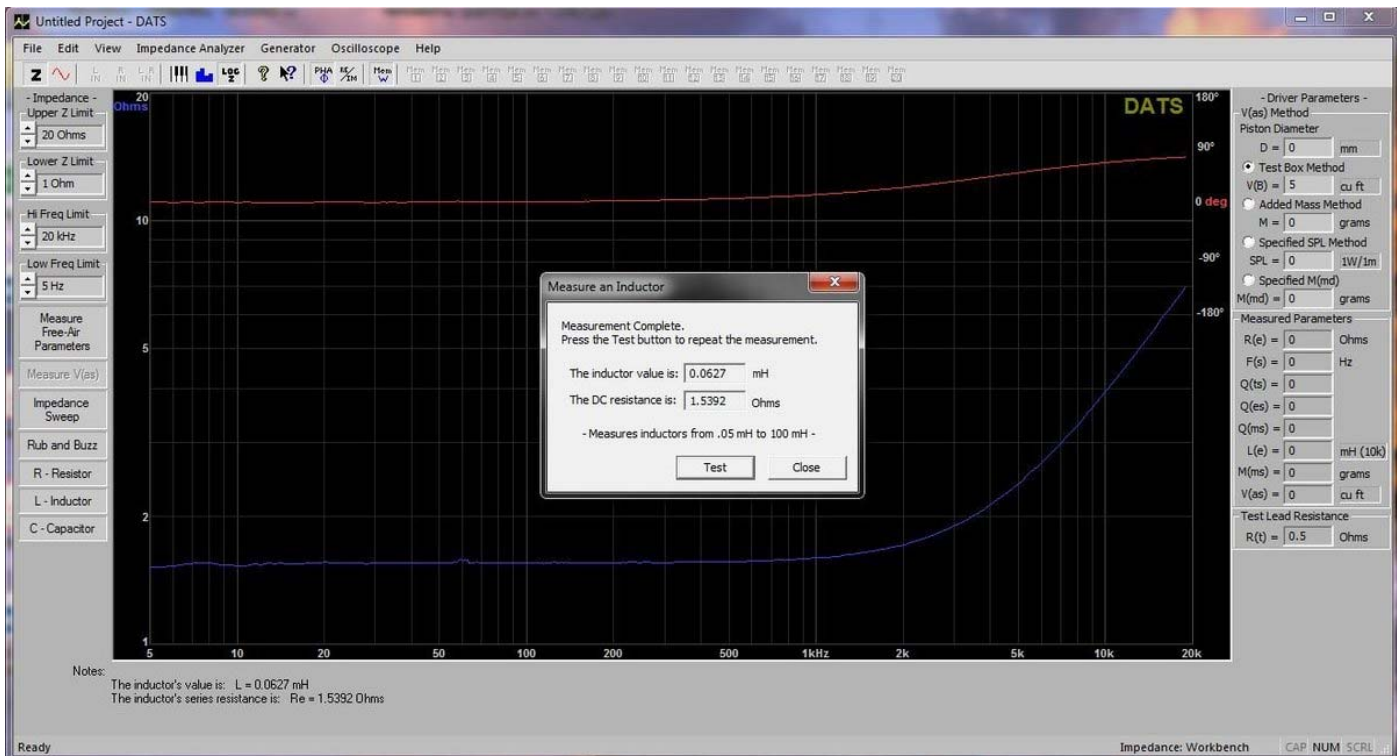
Once your driver is mounted in an enclosure DATS V3 makes it easy to verify your system's overall tuning for vented enclosures or Q for sealed enclosures by using the "Measure Free Air Parameters" button. The system will run a quick sweep and plot the impedance magnitude making it easy to verify the actual tuning of your system.



Verify Crossover Wiring and Performance

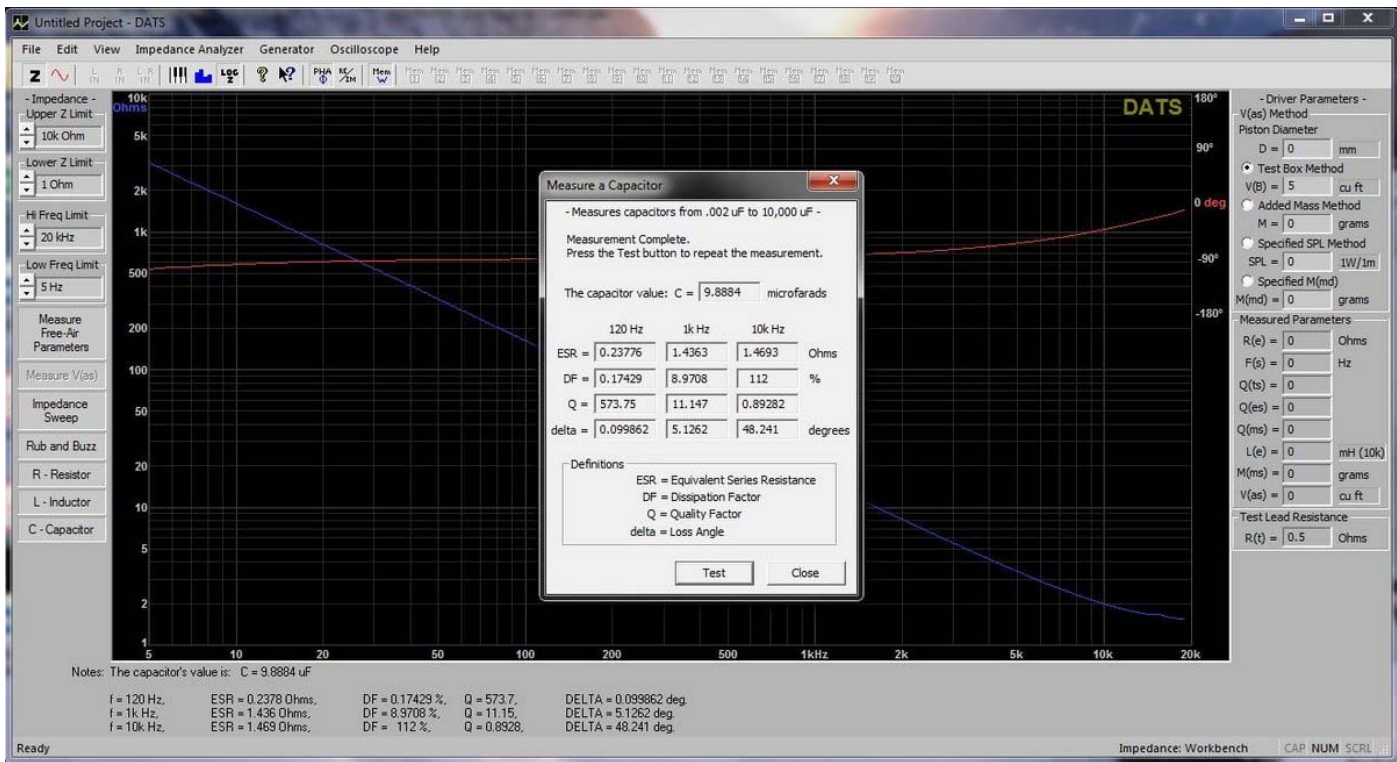
Once your speaker system is complete, you can run an "Impedance Sweep" to plot the overall system impedance. A quick comparison of the measured impedance to your modeled impedance makes it easy to ensure that your crossover is wired correctly and performing as intended.

Precision LCR Meter



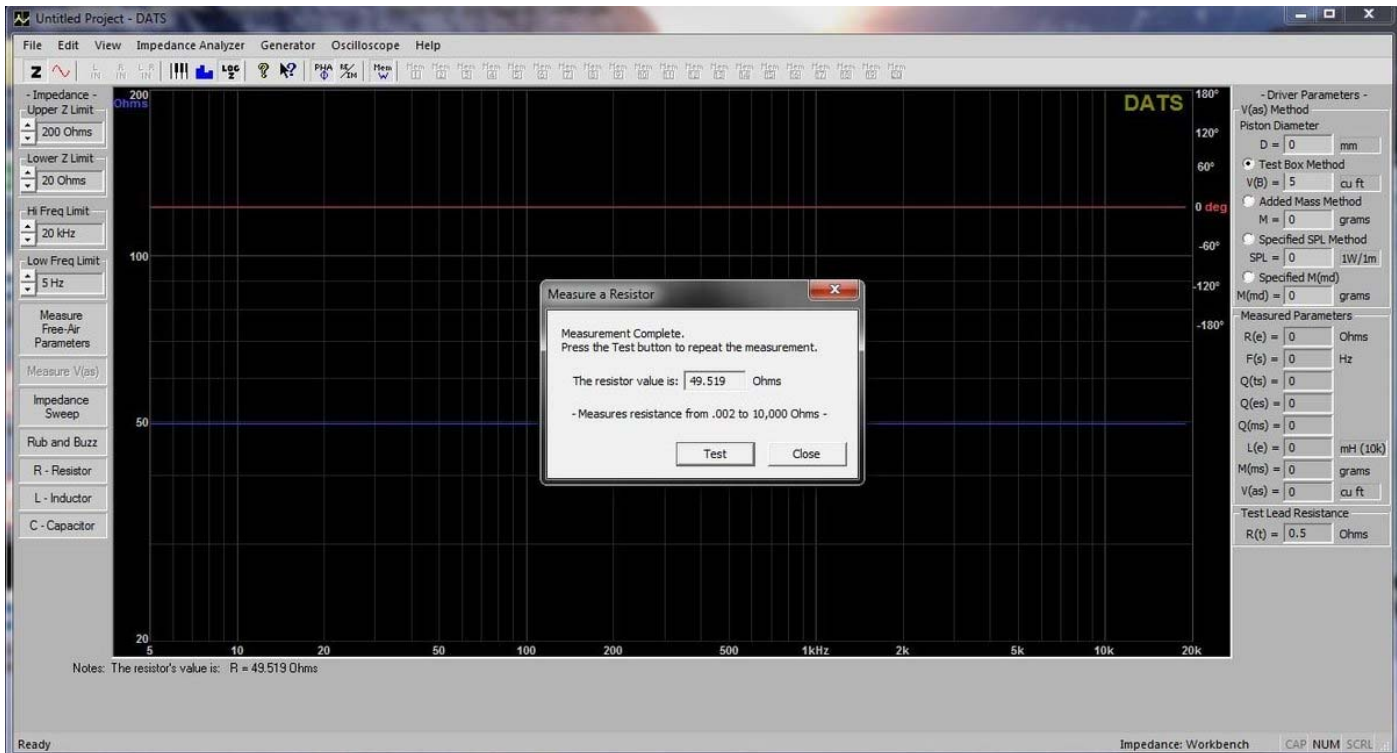
Inductor Measurement

Measure both the inductance and DC resistance of a coil with just one click. The DATS V3 is accurate from 0.05 mH up to 100 mH.



Capacitor Measurement

As a capacitance meter DATS V3 is in a league of its own. In seconds, it will measure all of a capacitor's electrical characteristics including capacitance, equivalent series resistance, Q, and even loss angle. DATS V3 is capable of accurately measure capacitance from 0.002 uF to 10,000 uF.



Resistor Measurement

Naturally, DATS V3 is also perfect for measuring resistance. As a unique feature, it will also plot the impedance of a resistor allowing you to see just how non-inductive your resistors really are. Resistance measurements are accurate from 0.002 ohms up to 10,000 ohms.