



◀ FIGURE 1: Top Pane – Live IR; Middle Pane – 4x Live RTA; Bottom Pane – 4x Live Transfer Function.

Smaart Version 7

Inside the new test & measurement platform. *by Jamie Anderson*

This Factory Direct was submitted by Meyer Sound. Live Sound International makes every effort to eliminate any use of marketing-inspired hyperbole.

»»» SOON-TO-BE-RELEASED Smaart version 7 test and measurement software is a completely new code base developed from the ground up. We have been able to reconsider, revise and improve all areas of the program – from the program's fundamental architecture through to the details of the control interface.

The changes to Smaart extend far beyond the application itself. One of the most exciting new features of Smaart v7 is actually our company, Rational Acoustics, which is made up of the same people who have been developing and steering Smaart for the last 12 years as SIA Software Company within EAW. As Rational Acoustics, we are a small, independent company focused only on Smaart, which means we can make decisions that make sense for our software and our market.

In addition, we can focus full-time on providing the high level of support and development that have been the hallmark of the Smaart platform. Now, what's new in Smaart v7? Let's take a look.

MULTI-CHANNEL, MULTI-PLATFORM

Smaart v7 is inherently multi-channel and multi-platform, able to access modern multi-channel input devices and operate native in both Windows and Mac operating systems (including 32- and 64-bit versions).

As you can see in the **Figure 1** screen capture, v7 can run multiple, simultaneous Spectrum and Transfer Function measurements.

MAXIMIZING DEVELOPMENTS

One thing that has remained constant over Smaart's decade-plus of evolution is the expansion of the processing power, speed and memory of personal computers, and with

that has come the potential for greater measurement power and possibilities.

From the outset, the Smaart v7 code base was optimized to make use of the all power that modern processor configurations present, whether it be from one processor or eight. A Smaart rig might not need to use all of a PC's power right now, but if history is any indicator, it will.

Smaart v7 System Hardware, Recommended Configuration:

- Microsoft XP, Vista or Windows 7 (32 & 64-bit)
- or -
- Mac OSX 10.5 or 10.6 (Leopard & Snow Leopard)
- 2 GHz Dual-Core Processor
- Graphics Processor with 128 MB dedicated video RAM
- Compatible Sound Hardware with ASIO, Wav or CoreAudio drivers

NEW PROGRAM ARCHITECTURE

One of the most powerful aspects of the new Smaart v7 platform is its object-oriented program architecture. Effectively, the program is built of many individual code modules that are run as independent, inter-related programs (objects).

This means that users can run as many simultaneous single-channel (spectrum) and dual-channel (transfer function) measurement engines as the computer will allow. (The v7 screen captures in this discussion were all made on a dual-core, 2 GHz Mac Pro. For users running the measurement power equivalent of Smaart v6, a 1 GHz single core would certainly be sufficient.)

This new architecture also means that Smaart is ready for expanded application/interaction beyond the basic program itself. Remote GUIs (Graphic

User Interfaces), real-time data export/sharing with other applications and the creation of plug-in versions are all now possible and already on the drawing board (Figure 2).

ENHANCED DATA ACQUISITION

Smaart v7's new data acquisition module now provides increased and improved access to the devices and signals in a system.

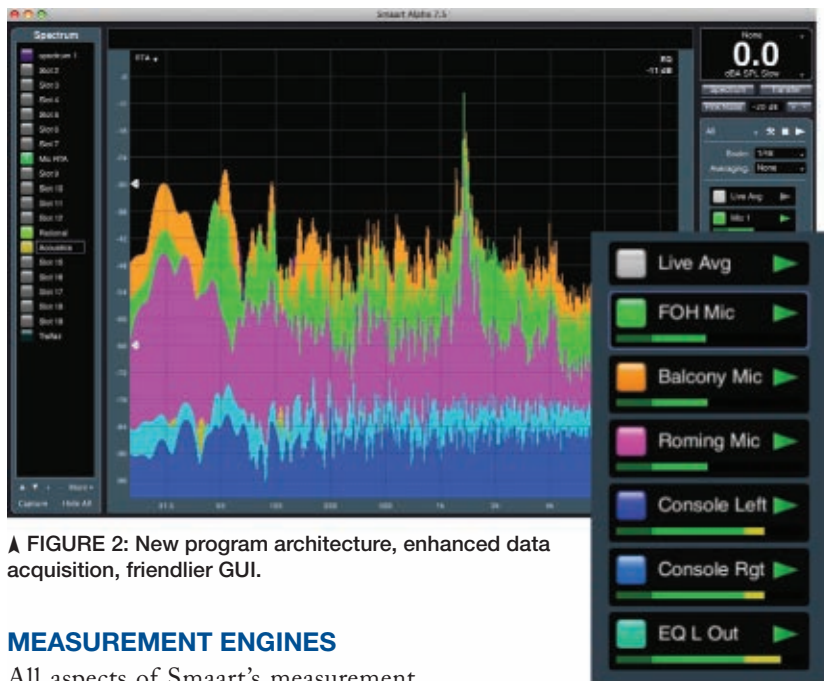
Features include unlimited input channels/devices; the ability to access multiple devices and virtual devices; ASIO, Wav and CoreAudio input; the ability to reference to internal sources; power calculation per input (SPL); and Time Domain Filtering/Input Calibration.

SIMPLIFIED GUI

While v7 has significantly expanded the measurement power of Smaart, it does not mean that the user interface (GUI) needs to become dauntingly complex. In fact, to be manageable, the GUI necessarily needed to get cleaner, simpler and more streamlined as the measurement system gains complexity. What's the use of power if it can't be controlled? As a result, Smaart v7 operation features a much more elegantly focused user interface.

Much effort in v7 development was put in to reducing unnecessary clutter. Many of the dialog box-based controls that once populated Smaart's interface have now been replaced with modern "point 'n' grab 'n' drag 'n' click" mouse-based controls.

If there's need to move a trace up or down, just grab it and drag it. For example, if the dynamic range of a spectrograph needs to be changed, or the coherence blanking threshold for a transfer function trace needs to be changed, those controls are right on the plot. The direct-enter dialog have not been eliminated, but they've been moved off of the top level interface – out of the way.



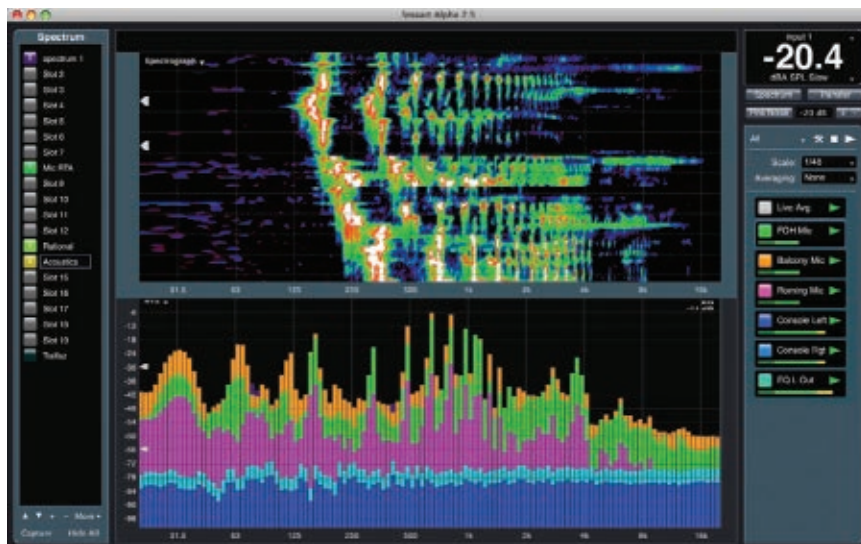
▲ FIGURE 2: New program architecture, enhanced data acquisition, friendlier GUI.

MEASUREMENT ENGINES

All aspects of Smaart's measurement engines were revisited, considered and reconsidered, and everywhere possible, improved. The resulting enhancements range from quite subtle, "under the hood" improvements to obvious quantum leaps in measurement power, stability, accuracy and ability.

The user can configure as many single-channel engines as they need, each with the ability to produce its own RTA

and Spectrograph data. RTA provides improved fractional-octave banding for RTA and Spectrograph, including 1/48th octave, while multi-channel input allows for simultaneous display of multiple individual RTAs, as well as "live averages" of active signals. In addition, there is a "Line-Over-Bands" view of RTA displays – both raw and banded data (Figure 3).



▲ FIGURE 3: Upgraded RTA capability is one of several factors in increased measurement power, stability, accuracy and ability.