

SV Sound AS-EQ1 Technical Note

Upgrading from SubEQ 3.1 to SubEQ 3.2

Purpose

This Technical Note is intended to guide you through the process of upgrading the SV Sound AS-EQ1's software (SubEQ) from version 3.1 to Version 3.2. In addition to upgrading your software, this process will also install new firmware on your AS-EQ1 to allow it to take advantage of new features in SubEQ 3.2.

New Features

SubEQ 3.2 includes new features and bug fixes from SubEQ 3.1. These include:

- Support for Windows Vista 64-bit OS. This extends formal Windows platform support to include XP SP2+, Vista-32 bit and Vista 64-bit. Windows 7 32/64 is currently being certified and early tests indicate no issues.
- Updated Level Measurement Method. The Level Matching function now uses the "C-weighted Leq method" and supports a Reset button. Leq is essentially a running average of the sound level as calculated over the measurement period.
- A new Level Matching procedure for both Audyssey MultEQ-equipped and non-Audyssey AVRs and Pre/Pros.
- Updated firmware for AS-EQ1 DSP.
- Filter resolution doubled over previous firmware.
- Certificate graphing bug fixed in Vista.

Before Upgrading

It is strongly recommended that you read this Technical Note in its entirety before starting the upgrade process and carefully note the steps to be taken, especially in the **Level Matching** section. It is also suggested using this Technical Note as a checklist while upgrading and re-calibrating your AS-EQ1 as some screens have been changed in SubEQ 3.2, and the Level Matching task has been changed from that used in SubEQ 3.1.

Before installing and running SubEQ 3.2 on your system, please be aware of the following:

- After installing SubEQ 3.2 and the new firmware on your AS-EQ1, you will be required to re-run the MultEQ calibration of your AS-EQ1 and in most cases on your AVR or Pre/Pro.
- You will not be able to downgrade SubEQ to version 3.1 due to incompatibilities between the new firmware installed on your AS-EQ1 and the methods used in SubEQ 3.1 for Level Matching and Measurement.

Using the software CD that came with your AS-EQ1, run the Setup.exe program and choose **Uninstall SubEQ** to remove the older SubEQ 3.1 software before you begin the upgrade.

Upgrading to SubEQ 3.2 and Installing New Firmware

Un-zip the http://www.svsound.com/AS-EQ1/SubEQ3.2/AS-EQ1_SubEQ3.2_Update.zip file to a directory on the PC that will be used to perform the update and subsequent re-calibration. Run Setup.exe from this directory and install SubEQ3.2 on your system only after you have uninstalled SubEQ 3.1 per the instructions given above.

After SubEQ 3.2 is installed on your computer (but before running it), attach your computer via USB to your AS-EQ1. If you are using a laptop computer to run SubEQ 3.2, make sure it is connected to an AC outlet (i.e., not running off the internal battery) at least until after the AS-EQ1 Firmware update has been successfully accomplished.

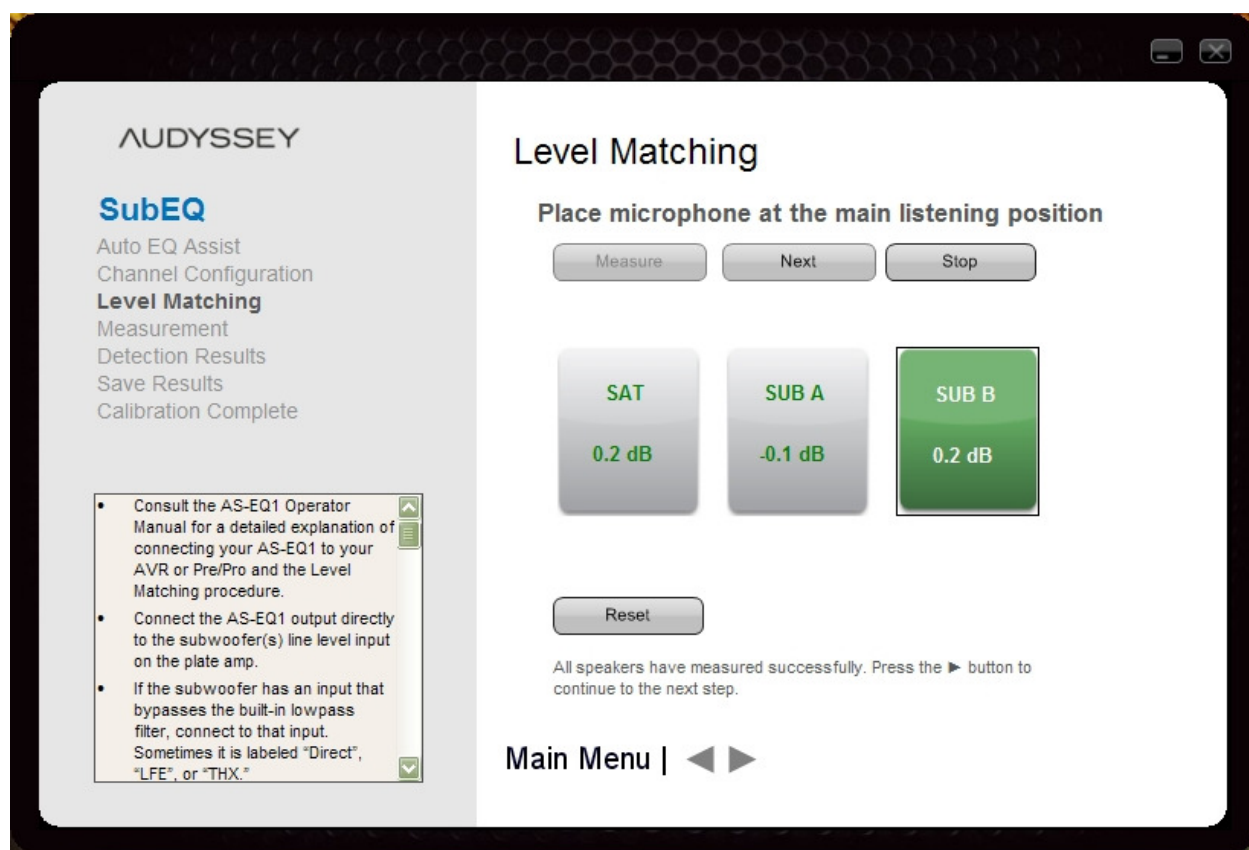
Run SubEQ 3.2 and select either **Start SubEQ Calibration** or **Level Check** from the top menu which will begin the process of upgrading the firmware in your AS-EQ1 if required (if SubEQ detects the proper version of Firmware on your AS-EQ1 no update will be performed). Follow the instructions given in SubEQ to accomplish the update, and make sure the process is not interrupted. Once the firmware update is complete, exit SubEQ, **shut-off the AS-EQ1 using the power switch on the back**, and unplug it from wall power for about 30 seconds.

Attach the **SAT Output** to your selected SAT speaker on your AVR or Pre/Pro and configure it per the AS-EQ1 Operator Manual. Reapply power to the AS-EQ1.

Re-Calibrating the AS-EQ1 with an Audyssey-Equipped AVR or Pre/Pro

Note: If your AVR or Pre/Pro is equipped with Audyssey MultEQ technology, follow the instructions contained in this section. If your AVR or Pre/Pro is not equipped with Audyssey MultEQ then skip to the next section. Note the Level Matching process for Audyssey-equipped AVR or Pre/Pros has changed from that used in SubEQ 3.1 so please read and understand before proceeding.

Run SubEQ 3.2 and skip the **Auto EQ Assist** step. Select your proper Subwoofer Channel Configuration and proceed to the **Level Matching** Screen:



Although similar in appearance to the **Level Matching** Screen in SubEQ 3.1, please note the **Reset** button below the **SAT** and **SUB** measurement boxes. Because SubEQ 3.2 uses a C-weighted Leq measurement method (essentially a running average of the sound pressure level) it is important to note that if you change levels of your **SAT** or **SUB**(s), it will be necessary to click the **Reset** button each time in order to clear the measurement buffer and establish a new measurement. Failure to click the **Reset** button when you make a level change to your **SAT** or **SUB** will result in very slow changes to the displayed value and inaccurate data.

Note: You will notice when you begin to measure that the scale of the measurement boxes is now an offset from 75 dB rather than an absolute dB value as it was in SubEQ 3.1. Positive values indicate you are above 75 dB, and negative values indicate you are below 75 dB. Additionally, if you are comparing

measurement levels between SubEQ 3.1 and SubEQ 3.2, you will probably notice a small difference in reported levels due to changes that have been made in measuring and reporting the sound levels. This is normal and nothing to be concerned about.

Select the input on your AVR or Pre/Pro to which the AS-EQ1 **SAT Output** is connected. As noted in the AS-EQ1 Operator Manual, ensure all DSP and bass management functions are disabled for this SAT channel. Ensure that Audyssey Dynamic Volume, Dynamic EQ and DSX are disabled in your AVR or Pre/Pro. With the **SAT** measurement box selected, click the **Measure** button. Adjust the Master Volume on your AVR or Pre/Pro (clicking the **Reset** button as needed) until the box turns green and you obtain a steady reading at/near 0.0 (which equates to 75 dB +/- 3 dB).

Click the **Next** button on the **Level Matching** screen. Using the gain control on the subwoofer amplifier, adjust the level of **SUB A** (clicking the **Reset** button as needed) until the box turns green and you obtain a steady reading at/near 0.0

Click the **Next** button if you have two subwoofers and repeat the above step for **SUB B**. It is critical that dual subwoofers match each other as closely as possible before navigating away from the **Level Matching** screen.

Once you have finished level matching your SUB(s), proceed to the **Measurement** screen and take the appropriate number of measurements for your listening environment.

Proceed to the **Detection Results** screen and note the recommended Sub Distance and Trim values. These values will not be used in your AVR or Pre/Pro but will be used to check the results of your MultEQ setup in a later step.

When finished measuring, proceed to the **Save Results** screen, save your filters to the AS-EQ1, and view/save your calibration Certificate. Your AS-EQ1 calibration is now complete.

Remove the **SAT Output** connection from your AVR or Pre/Pro, and ensure your AVR or Pre/Pro's Subwoofer Pre-Out is attached to the appropriate Input of the AS-EQ1. Following the instructions provided with your AVR or Pre/Pro, and with your AVR or Pre/Pro's Mic attached to the AVR or Pre/Pro (NOT the AS-EQ1) perform the MultEQ setup and calibration. The AS-EQ1 should be powered on, enabled and in the signal path, and your Subwoofer(s) on and set from the AS-EQ1 calibration.

After finishing your MultEQ setup and calibration on your AVR or Pre/Pro, check the subwoofer trim level and distance setting in your AVR or Pre/Pro – both should be fairly close to that given in the **Detection Results** screen above. If your Sub trim is between -3.5 dB and +3.5 dB your AS-EQ1 is now successfully integrated into your audio system. If the subwoofer trim level falls outside the range of +/- 3.5 dB, please contact SVS (techsupport@svsound.com) to determine if additional action is necessary.

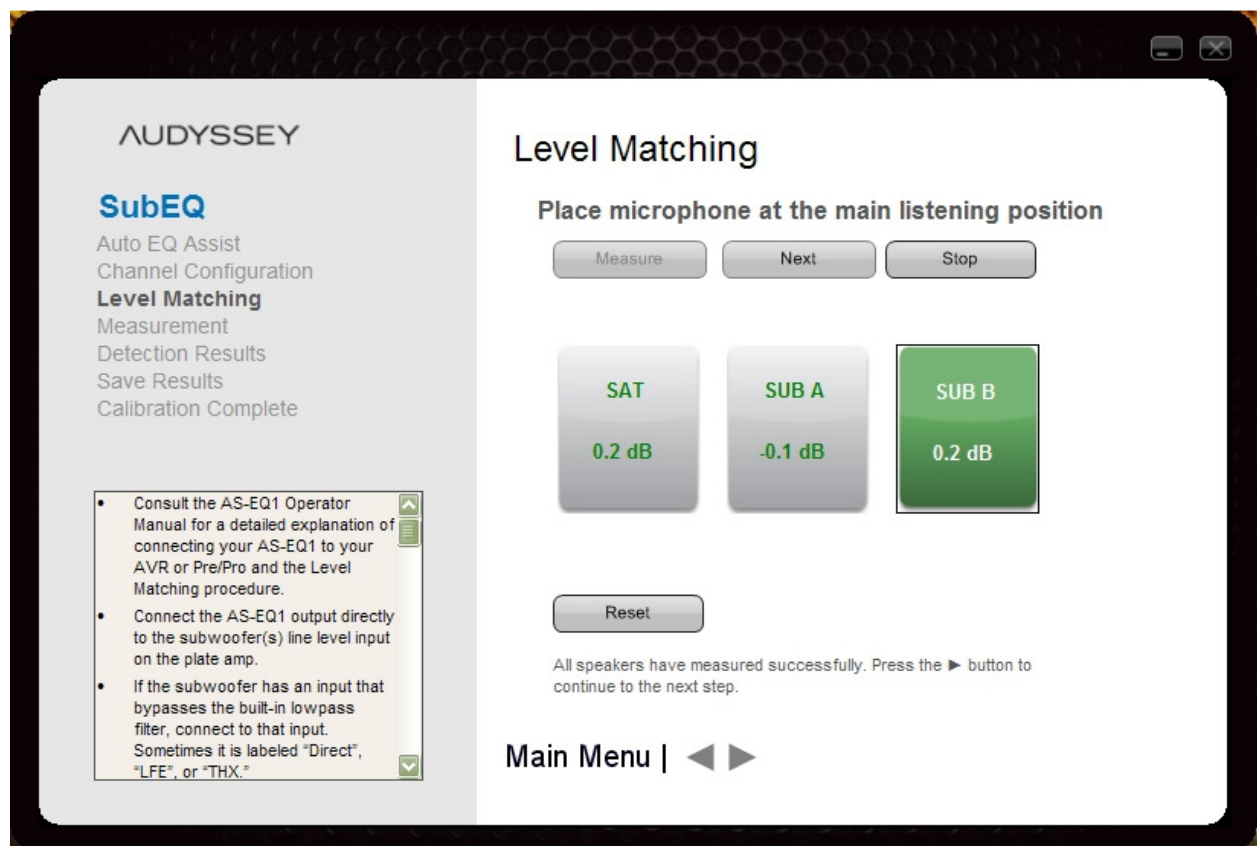
Re-Calibrating the AS-EQ1 with a Non-Audyssey Equipped AVR or Pre/Pro

*Note: If your AVR or Pre/Pro is **NOT** equipped with Audyssey MultEQ technology, use the instructions contained in this section. Also note the Level Matching process for non-Audyssey-equipped AVR or Pre/Pros has changed from that used in SubEQ 3.1 so please read and understand before proceeding.*

If your AVR or Pre/Pro has a Setup/EQ system that is **NOT** based on Audyssey technology, make sure you have completed the **Auto EQ Assist** task in the AS-EQ1 Operator Manual before proceeding.

If you are not using any form of auto setup on your AVR or Pre/Pro it is assumed that you have already manually level matched your SAT speakers, and also know your “Reference” Master Volume setting. The Reference Master Volume setting is used for calibrating the speakers to 75 dB when playing the internal test tones. This Master Volume setting is usually 0.0 on THX compliant systems, but may be different for AVRs or Pre/Pros using a different volume scale.

In SubEQ 3.2, select your proper Subwoofer Channel Configuration and proceed to the **Level Matching** Screen:



Although similar in appearance to the **Level Matching** Screen in SubEQ 3.1, please note the **Reset** button below the **SAT** and **SUB** measurement boxes. Because SubEQ 3.2 uses a C-weighted Leq measurement method (essentially a running average of the sound pressure level) it is important to note that if you

change levels of your **SAT** or **SUB(s)**, it will be necessary to click the **Reset** button each time in order to clear the measurement buffer and establish a new measurement. Failure to click the **Reset** button when you make a level change to your **SAT** or **SUB** will result in very slow changes to the displayed value and inaccurate data.

Note: You will notice when you begin to measure that the scale of the measurement boxes is now an offset from 75 dB rather than an absolute dB value as it was in SubEQ 3.1. Positive values indicate you are above 75 dB, and negative values indicate you are below 75 dB. Additionally, if you are comparing measurement levels between SubEQ 3.1 and SubEQ 3.2, you will probably notice a small difference in reported levels due to changes that have been made in measuring and reporting the sound levels. This is normal and nothing to be concerned about.

Select the input on your AVR or Pre/Pro to which the AS-EQ1 **SAT Output** is connected. As noted in the AS-EQ1 Operator Manual, ensure all DSP and bass management functions are disabled for this SAT channel. Also ensure that Audyssey/Dolby Dynamic Volume (if applicable) are disabled in your AVR or Pre/Pro. Set the Master Volume on your AVR or Pre/Pro to the Reference Level (on THX standard or compliant systems, this is usually 0.0).

Make note of the current/existing trim setting in the AVR or Pre/Pro speaker set-up menu for the connected **SAT** channel. With the **SAT** measurement box selected, click the **Measure** button. Adjust the **trim level** (NOT the Master Volume) for that **SAT** channel until the box turns green and you obtain a steady reading at/near 0.0 (which equates to 75 dB +/- 3 dB). Remember to click the **Reset** button as needed as you make trim level adjustments.

Make a note of the new trim level setting for the connected **SAT** channel after adjustment. Subtract the new setting from the previous setting and then take the inverse of this value. This is your **SAT trim differential**. In your AVR or Pre/Pro Setup menu, apply this **SAT trim differential** to all other existing trim settings for the remaining speaker channels. This will save you the time of connecting all the other speaker channels to the AS-EQ1, and will also preserve the relative differences between all the speaker channels, only adjusting them for absolute volume. Examples are presented below:

Previous SAT Trim Setting	New SAT Trim Setting	Subtracted Value	SAT Trim Differential
-2	-3	$-2 - (-3) = +1$	-1
-2	-1	$-2 - (-1) = -1$	+1
+4	+2.5	$+4 - (+2.5) = +1.5$	-1.5
+1	+2.5	$+1 - (+2.5) = -1.5$	+1.5

Note: Some AVR or Pre/Pros (notably Denon) allow the trim levels to be adjusted individually for each input and/or source code (e.g., the same digital coax input can have different speaker channel trim levels for stereo source material and Dolby Digital source material). If your AVR or Pre/Pro has this capability, it is your responsibility to make sure any speaker channel trim level changes are made in the main/primary speaker set-up menu and not just for one type of input and/or source material. Check your owner's manual to see if this situation applies to your case.

Click the **Next** button on the **Level Matching** screen. Using the gain control on the subwoofer amplifier, adjust the level of **SUB A** (clicking the **Reset** button as needed) until the box turns green and you obtain a steady reading at/near 0.0

Click the **Next** button if you have two subwoofers and repeat the above step for **SUB B**. It is critical that dual subwoofers match each other as closely as possible before navigating away from the **Level Matching** screen.

Once you have finished level matching your **SUB(s)**, proceed to the **Measurement** screen and take the appropriate number of measurements for your listening environment.

When finished measuring, you will be taken to the **Detection Results** screen. Make note of the **Sub Distance and Trim Values** as these will need to be entered into your AVR or Pre/Pro in a subsequent step. The information presented for the Satellite channel shows what MultEQ detected as the lower-end of your bass management crossover range if you choose to use it. Otherwise consider it FYI.

Proceed to the **Save Results** screen, save your filters to the AS-EQ1, and view/save your calibration Certificate. Your AS-EQ1 calibration is now complete and you need to finish setting up your AVR or Pre/Pro.

Remove the **SAT Output** connection from your AVR or Pre/Pro, and ensure your AVR or Pre/Pro's Subwoofer Pre-Out is attached to the appropriate Input of the AS-EQ1. Using your AVR or Pre/Pro's Setup menu, enter the **Distance** and **Trim** level for your subwoofer(s) given in the **Detection Results** screen. If your Sub trim is between -3.5 dB and +3.5 dB your AS-EQ1 is now successfully integrated into your audio system. If the subwoofer trim level falls outside the range of +/- 3.5 dB, please contact SVS (techsupport@svsound.com) to determine if additional action is necessary.