

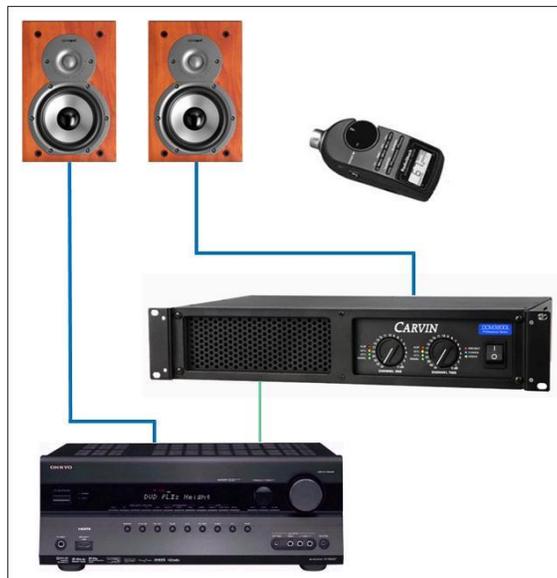
Determining Background Noise Levels

This exercise will help determine how quiet the background noise levels are of AVRs, processors, amplifiers, etc. The required tools include:

- * Sound level (SPL) meter.
- * Test disc with reference pink noise signal.

Part 1: Amplifiers

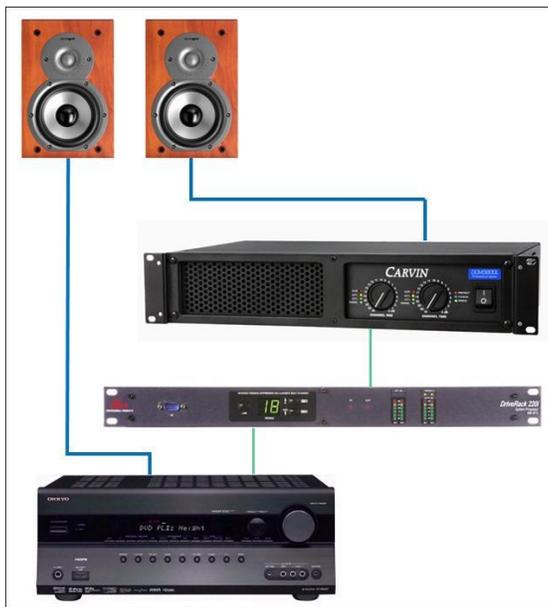
1. Relocate the two front left and right speakers next to each other, preferably near the equipment rack.
2. One speaker should remain connected directly to the left channel of the AVR. Connect the AVR's right pre amp output to one channel of the amplifier, and the other speaker to the connected amplifier channel.



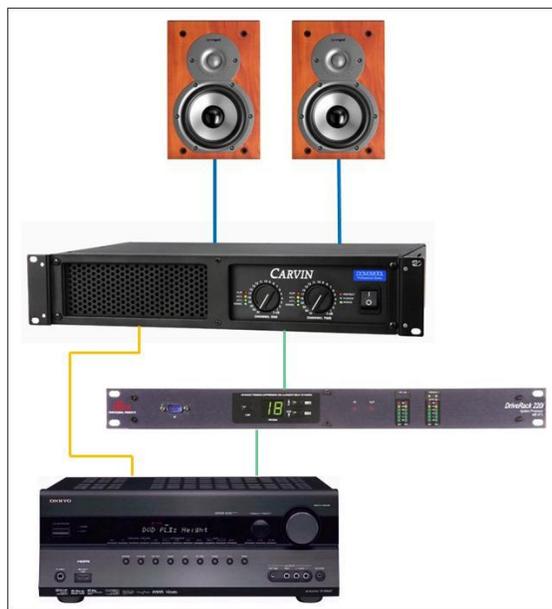
3. Turn on the AVR and amplifier, and turn the AVR's volume down to a low setting. Also turn the amplifier's gain controls all the way down.
4. In the AVR's menu, make sure any auto-EQ functions are disabled and/or tone controls are adjusted to flat (0 dB gain).
5. Pan the AVR's balance control to the left channel.
6. Start the pink noise signal from the test disc. Increase the AVR's volume setting until the SPL meter reads in the 70-75 dB range for the left speaker.
7. Pan the AVR's balance control fully to the right channel (the one connected to the pro amp). Increase the amplifier's gain control until the right-speaker SPL reading matches the measurement for the left speaker.
8. When the SPL readings for the two speakers match, the outboard amplifier has been level-matched with the receiver's built-in amp.
9. Stop the pink noise signal and switch the AVR to an unused input.
10. Turn the AVR's volume all the way up.
11. Put your ear close to each speaker and compare the perceived noise levels – hum, hiss or both – between the AVR-direct (reference) and AVR-with-amplifier channels.

Part 2: Equalizers / Processors

1. Turn the AVR down to a low volume level, then turn it off. Turn off the amplifier as well.
2. If you determined from Part 1 that the amplifier added no additional noise to the right-channel signal chain, connect the equalizer between the AVR and the amplifier. Leave the left channel as-is, with the speaker connected directly to the AVR.



3. If you determined that the amplifier *did* add some noise to the right-channel signal chain, the amplifier becomes the new noise-floor reference. So, connect the equalizer between the AVR's right channel and the amplifier, and add the amplifier connection to the left channel signal chain.
4. Adjust the amplifier's left channel gain control to match the right side setting.



5. After connections are made, turn on all the equipment.
6. Make sure all filters and level controls in the equalizer or processor are set for no gain (0 dB).
7. Turn the AVR's volume all the way up.
8. Put your ear close to each speaker and compare the perceived noise levels between the no-processor (reference) and with-processor channels.
9. Turn the AVR volume to a low setting before turning it off.