



Hi-Fi & Home Cinema Mains Improvements

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The Mains Supply

How many times have you sat back in your favorite listening chair around midnight or the early hours and noted just how spectacular your system sounds? Then have you noticed how the sound deteriorates early evening? What you're hearing is not just your system, but the mains supply. The bad news is, things are going to get much worse, but there is always something you can try to do to get that 'Midnight' sound all of the time. The mains is your enemy take time to know it!!

What you're fighting in your mains system is not just one problem, but a number of problems, all of which affect the sound of your system. The first problem is earthing, or rather a lack of. In older homes, or homes that haven't been rewired for the last 20 or more years, it is not unusual to find that your earth is very poor. This can manifest itself as background hash during inter-transient silences, haziness around your images on the soundstage and sometimes glassiness to the mid-range and high frequencies. The multitude of low voltage power supplies in desktop PC's, satellite receivers laptops, portable radios also does a lot of damage to mains integrity and deteriorates sound quality still further.

Further problems in the mains can be found due to the age of the mains grid itself. Quite simply much of the equipment in the National Grid is old, and it's operating efficiency is not what it used to be. Furthermore the ability of this equipment to deliver tightly regulated 240V / 50 Hz mains is deteriorating. It should also be noted that when the overhead power lines used today were originally installed, the air did not contain the RFI and EMI as it does now, hence the mains voltage power, before it reaches your local electricity substation, is already massively polluted and un-fit to power hi-fi.

Due to current regulations the voltage delivered to your home can be as much as +/- 10% and this in itself can severely affect the ability of a power amp or A/V receiver to meet it's specifications. The result is voltage that can swing between 207V and 253V. What is worse is your supplier doesn't have to do anything about it. Today's homes and offices also have far more low voltage equipment in them than ever before. The power supplies which drive these devices (like those in an audio system) only use the top and bottom of the sine wave to actually power them. Therefore the hypothetical 50Hz Sine Wave that should be coming out of your socket would, on an oscilloscope, actually have its peaks and troughs flattened off as it's these peaks and troughs that drive devices that use switch mode power supplies found in so many devices today.

The next problem is the insidious duo of EMI (Electro Magnetic Interference) and RFI (Radio Frequency Interference). This pair are also on the rise with their crimes getting grander by the year. Mobile phones, wireless LAN's, digital radio and digital satellite TV broadcasting all attack your mains. The aforementioned offenders cause a hideous soup of RFI that your mains just loves to transmit into your audio hi-fi and video home cinema equipment.

Finally there is a problem of relationship counseling between components across the mains - with many modern digital components throwing all kinds of noise straight back into the mains supply that then drives your analogue components. This is like having an EMI & RFI source sited right next to your analogue components.

It is only in the last few years that the damage which all this mains pollution can do to the final sound of your audio and home cinema system has been recognized and addressed. Fortunately there are many solutions to help deal with mains problems, these range from correct dressing of cables, to highly sophisticated mains regenerators, costing several thousand pounds, which literally give you your own power station in your listening room. In between these two extremes are a variety of mains filters, isolation transformers and mains cables, all of which when used appropriately can yield a big improvement in the sound and performance of your system disproportionate to the costs involved.

For most systems you should consider filtering the power to all components as an essential first step. With products costing from £300 for high quality, system wide treatment, you will receive a significant improvement in sound (and also picture) quality. Support this filtering with a fully shielded mains cable that features a high quality IEC connector from the likes of Wattgate and you have already addressed a significant spectrum of mains noise. As your expenditure increases you will find the problem of inter-component interference is addressed through complete isolation of each socket. Further improvements will be wrought by plugging all of your components into isolation transformers, which effectively block noise movement into and out of your equipment whilst providing a very high standard of mains purification. Where nothing but the very best will do mains regeneration is the ultimate solution, giving each component it's own dedicated power supply. Even at this price point the costs are easily justified once you hear the incredible improvements in sound quality that this sort of equipment can achieve.