

## DIGITAL GRAFFITI: WIRE WE HERE?

By Ken Kantor

*Wire reviews are a waste of time.*

September 14, 1999 -- I'm really over reviews of speaker wire. Generally based on technical misunderstandings, the information they include almost never translates from one situation to another. And to the "wire-makes-a-big-difference-and-I-have-better-ears-than-you crowd": Spare me the vitriol. Been there, done that, got a T-shirt. Yet another intelligent and well-meaning audio lover becomes convinced every few minutes that wires play a big role in getting high-quality sound. And why shouldn't they? These folks are consistently told that there are great differences between the various types of wire. It becomes the hot topic of social gatherings. ("The wife asked me what I had done to improve my stereo -- even before I told her about the new cables!").

*Don't even go there.*

Most hi-fi reviewers are self-assured of their ability to perceive and categorize obvious and consistent differences between brands of wire. No matter who you are or what your credentials and experience may be, if you minimize the importance of wires in the sonic equation, you are ridiculed for your lack of accurate hearing, for the quality of your system and for the conservatism of your viewpoint. You really can't win. For instance, I have friends who enjoy debating about politics, religion and ethics. Yet as soon as I start to explain the basic, known science of audio cables, they turn red and throw things. In audiophile circles, you could promote the benefits of molestation with less scorn than you get from downplaying cable differences. Sheesh, how "politically correct" does one have to be? Maybe it's advertising, maybe it's ego. Maybe it's just the basic yearning to experience the unknown that explains the strange psychological energy that permeates audio cable debates. It was Einstein who said, "The most incomprehensible thing about the world is that it is at all comprehensible." But, if there is anything in audio that is well understood, it is wire.

*Unbind your mind.*

That doesn't mean all speaker wire "sounds the same." It does, however, mean that the way they work is not magic. Open your mind and your ears and take a minute or two to understand the real deal. Once you do, it will become clear why the prevailing popular notions are wrong. To do so, though, you must first let go of your preconceptions about the behavior of cables at audio frequencies. To start with, any cable interposes an electric circuit between the amplifier output and the speaker input. Whatever the cable is -- and however it is constructed -- the effect it will have on the sound of your system boils down to three quantifiable factors: resistance (R), capacitance (C) and inductance (L).

If these three factors were all equal to zero, the cable would indeed have no effect whatsoever on the signal. Given that this is never the case, there always is some influence that the wire exerts on the signal - perhaps it is audible, perhaps not. The key issue I'm heading towards here is this: Exactly what sonic effects a given combination of R, C and L will yield depend entirely on the amp and speaker used. One speaker/amp combination will get a bit brighter with more capacitance added; a different one will sound duller; and a third will be virtually unaffected. Likewise, the effects of resistance and inductance are impossible to generalize. What's more, all three intermix. For this reason -- and contrary to modern

"wisdom" -- wire brands cannot possibly have any truly inherent sonic character. To speak of a "smooth" or "detailed" cable is incorrect and misleading. The difference in sound is all in the matchup -- and reviewers should know this.

### *Studies have shown...*

The fact is, over the years, there has been much research and investigation into the sonic effects of speaker cables. Sure, some of it is sloppy and virtually worthless. The majority, however, has been conducted with great care by qualified audiophile scientists. What has consistently emerged from these studies is that although speaker cables sometimes influence the sound, they usually do not. Even the most biased audiences seem to lose the ability to distinguish between different cables when they can't see what they are listening to. When you take the time to track down and analyze the apocryphal stories about miraculous wires, you find that people moved their speakers by an inch or two, or perhaps they absent-mindedly cleaned the amp terminals before hooking up new wires. Carefully eliminate these subtle variables and wires start to sound surprisingly similar. Not always perfectly identical, to be sure -- but not responsible for the huge improvements in tonality, depth and imaging that many people have been led to expect.

### *What to do?*

In all cases, the lower the R, C and L, the less the sound will be altered. Accordingly, you should use heavy wire and solid connections. It does not mean you must use expensive or brand-name wire. Actually, heavy zip cord is pretty hard to beat for signal neutrality. In reality, zip cord is not just OK, it's better than much of what is being sold today (that is, if accuracy of sound is your goal). Transmission lines? Characteristic impedance? Skin effects? Risetime? Get a clue! These terms are virtually meaningless when applied to audio. The wavelength of a 20 kHz sound travelling in a speaker wire is several MILES long. That means that audio frequencies are much, much lower in frequency than the point at which detailed construction aspects of the wire are going to have any influence on the signal -- so much lower that it isn't even a gray area. Don't believe me? Ask your local physicist, the one who doesn't work for a hi-fi company. Human hearing is very much subject to conscious and unconscious influences. If even you can't be completely certain of what you are hearing, how could anyone else? So, by all means, feel free to succumb to whatever mixture of illusion and reality feels good when choosing your cables. Just take all the stuff you read with a big grain of salt. It isn't borne out by scientific research and, more important, it isn't supported by controlled listening tests -- regardless of how persuasive and seemingly logical the advertisements and reviews may be. Trusting your ears sometimes means learning to hear a subtle difference or discovering a hidden distortion. Just as often, though, it just calls for an admission that you're making an audible mountain out of a sonic molehill. Hey, it can happen; the majority can be wrong.