

## Re: Question: EMI Shielding for IDE cables

**Source:** <http://sci.tech-archive.net/Archive/sci.electronics.basics/2004-08/1017.html>

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**Date:** 08/19/04

Date: Thu, 19 Aug 2004 04:55:12 GMT

On Thu, 19 Aug 2004 02:41:40 GMT, "blue" <user@host.com> wrote:

>(Long story)

>I am having problems with hard drive data corruption.

>I have recently rebuilt some of my computers in rackmount casings. After

>running them for a few weeks, I noticed that all of my files were becoming

>corrupted. I have 4 x 160GB + 4 x 120GB hard drives where this is becoming a

>problem. 2 of the drives lost their partition tables and became completely

>useless.

>I made valiant efforts to recover and preserve my data, but I have basically

>given up.

>

>After much investigation, I suspect the cause for these problems to be

>related to my IDE cables.

>1. With the chassis layout, the power supply is located at the front of the

>case, leaving an AC power cable running directly under the hard drive bays

>and the ide cables.

>2. The rack itself houses 6 computers, 2 UPS, 2 power bars, and about 10-15

>other devices (modems, switches, etc), so I expect that there is quite a bit

>of interference here.

>3. I am using flat ribbon 24" and 36" IDE cables, because shorter cables

>will not reach from the drive bays to the ide controller connectors.

>4. All drives are running ATA100

>

>When doing data recovery, I removed the drives from the cages and ran short,

><18" ribbon cables. This seemed to greatly reduce the incidence of new data

>corruption.

>

>I have recovered whatever I could from the drives. They are now all freshly

>formatted and repartitioned. Because of the problems I have had, I am afraid

>to use them for anything.

>

>I truly do believe that the IDE cables are my problem. I ordered a bunch of

>rounded 36" ide cables, but when I got them, I realized they have no

>shielding at all (I thought the point of rounding a cable was to put a

>shielding around it!).

>

>I expect that shielding these cables may help fix my problems. I am looking

>for any advice on doing this. I initially thought I'd just get some aluminum  
>muffler tape from the auto parts store, and wrap the cables, but I'm not too  
>sure.  
>- Do I need to put a ground wire onto the shield? I think it would make  
>sense to have a drain on one end of the shield and attach it to the chassis  
>- Should I put one of those ferrite clamp shields on the ide cables?  
>- Should I put one of those ferrite clamp shields on the internal AC power  
>cable?  
>  
>I also think it would be smart to wrap any shielding in an insulating  
>material, like electrical tape or something. But when electrical tape heats  
>up, the adhesive makes everything gooey. I don't know if I can fit heat  
>shrink tubing over the connectors. Any other ideas?  
>  
>Thanks for making it to the end of this long email!  
>Keith  
>creekchubbAHotmailDOTcom (replace AT with @, and DOT with .)  
>

It is unlikely that shielding is the culprit, and more likely that grounding or other power supply issues is the problem.

By reducing the cable length, you have actually reduced the need for good grounding. The suggestion by tempus fugit that 80-pin cables is right-on, since those cables are required for proper ATA100 operation. They provide 40 additional ground wires in each cable (which is not quite the same as shielding). Standard ATA cables have only 5 or 6 ground conductors.

You should also check the quality of the cabling in the power connections. If you changed cases, I assume you also changed power supplies and likewise the distribution of power. Watch out for those "Y" cables in the power supply -- the standard ATA power connector is notorious for getting bent out of shape if they are plugged/unplugged a number of times.

Kevin