

Question: EMI Shielding for IDE cables

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(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

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