

## Re: Question: EMI Shielding for IDE cables

**Source:** <http://sci.tech-archive.net/Archive/sci.electronics.basics/2004-08/1098.html>

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**From:** tempus fugit (*toccata\_at\_no.spam.ciaccess.com*)

**Date:** 08/20/04

Date: Thu, 19 Aug 2004 22:50:03 -0700

It would be better to ground it, of course, but you would still get some shielding from just wrapping it in the tape.

"blue" <user@host.com> wrote in message  
news:Bj2Vc.432417\$rCA1.312815@news01.bloor.is.net.cable.rogers.com...  
> *Thanks for the replies,*  
> *I am using new aftermarket power supplies (thermaltake 480W). I've dealt*  
> *with power supply problems with hard drives (long ago in the past), and*  
> *the*  
> *symptoms don't fit my current situation. Drives are always detected in*  
> *bios,*  
> *drives always spin up properly, drives are always accessible through os.*  
>  
> *The reason why I think it is interference of some sort:*  
> *I did some checking of a bunch of corrupt files in a hex editor. I*  
actually  
> *had chunks of text from other text files. So data got scrambled up during*  
> *read/writes to the drives.*  
> *Switching to a shorter cable to do data recovery also meant unscrewing the*  
> *drive from the bay, and just sitting it in the chassis next to the ide*  
> *controller plug. This moved the drive away from the power cabling. Also,*  
> *when doing recovery, I removed the rack chassis from the rack. With this*  
> *done, I did some file copying tests to see if I was still getting*  
> *corruption, and I did not. The same tests, with long ide cables, and the*  
> *drive mounted in the bay, gave corruption errors. Test file was a large*  
rar  
> *archive set, test was a sfv file check.*  
> *I am using flat ribbon IDE cables, 80 conductor / 40 pin. I understand*  
that  
> *the second connector is a ground, which should eliminate cable crosstalk.*  
> *But I do believe that my problem is actual RF or EMI interference.*  
> *I need to use longer cables because of the chassis layout - 24" - 36". It*  
> *would seem to be quite easy to shield the rounded cables from EMI with*  
some  
> *aluminum tape, I just don't really know what I need to consider. An EMI*  
> *shield doesn't really make sense to me without a ground. And, is aluminum*  
> *muffler tape the right stuff to use?*  
>

> *I am definitely paranoid of data corruption now – the amount of data I lost  
> was crazy. I could have never imagined losing a full terabyte of data all  
at  
> once..*  
>  
> *Thanks,*  
> *Keith*  
> *creekchubbAHotmailDOTcom (replace AT with @, and DOT with .)*  
>  
> *"Kevin Kilzer" <kkilzer.remove.this@mindspring.com> wrote in message  
> news:u998i0hfhq9083gij1i4mqftqnb1cinc9e@4ax.com...*  
> > *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*  
> >  
>  
>