Re: Recording digital data to analog tape... revisited

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From: CBFalconer (*cbfalconer_at_yahoo.com*)
Date: 10/18/04

Date: Mon, 18 Oct 2004 10:44:08 GMT

Mark Borgerson wrote:
>
... snip ...
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> *My application was for an oceanographic cable, which can be quite*
> *different from a telephone cable. In particular, I had to cope*
> *with the fact that one of the wires might have about 300V DC*
> *to ground (or the other wire). I've also heard, but not been*
> *able to verify, that the cable characteristics change as the cable*
> *is reeled out into the ocean. I do know that we had be be able*
> *to cope with slip ring noise also−−which was handled with ACK/NAK*
> *and packet repeats.*

That sounds like moving power on the same copper. My approach might be to use the common mode of a twisted pair to supply one of the power potentials (including ground). Thus, if a 100 ohm line is terminated by two 50 ohm resistors at each end, they look like 25 ohms per end to the common mode supply. The remote end can use DC/DC converters to trade volts for amps. Redundant signal paths mean redundant power paths with means of detecting partial failures.

Changes in line characteristics look like taps on the line. The system should be fairly immune to these when both ends are terminated with a reasonable match, provided the taps are reasonably high impedance. Obviously a short circuit doesn't let anything past it.

You can even apply TDR (time domain reflectrometry) to the installed line, and decide exactly what you have. You can then compensate for its deficiencies or tell the maintenance people where to look.

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 "I support the Red Sox and any team that beats the Yankees"

 "Any baby snookums can be a Yankee fan, it takes real moral

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fiber to be a Red Sox fan"
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