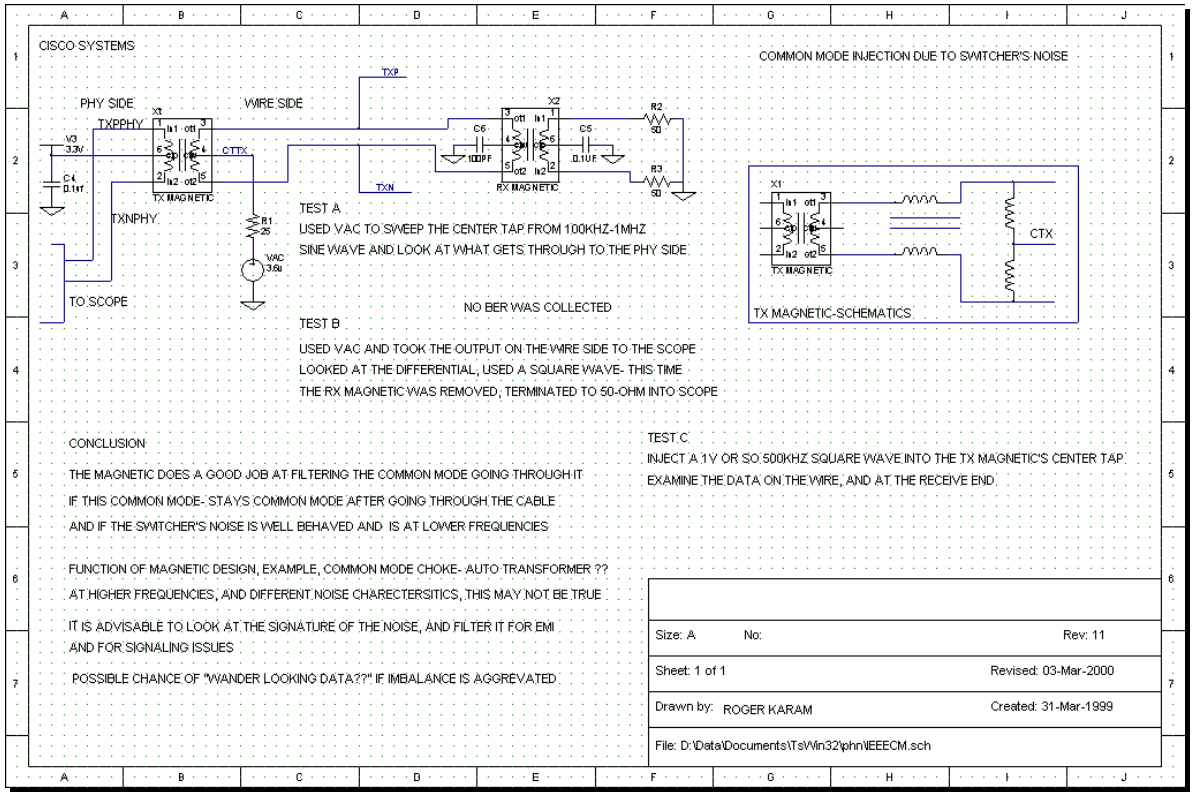
Common mode Rejection Through Center Tap of Magnetics

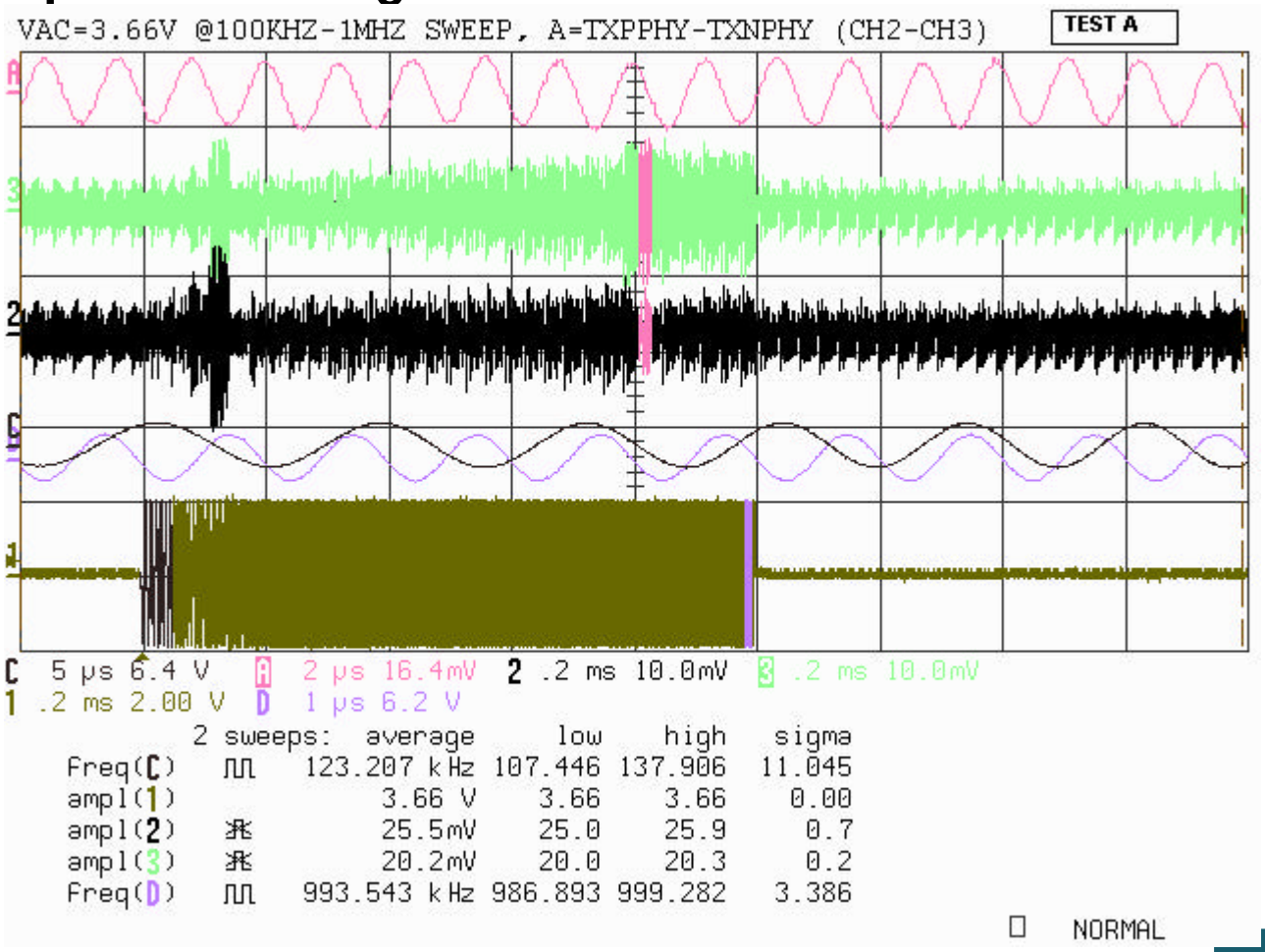
Roger Karam

rkaram@cisco.com

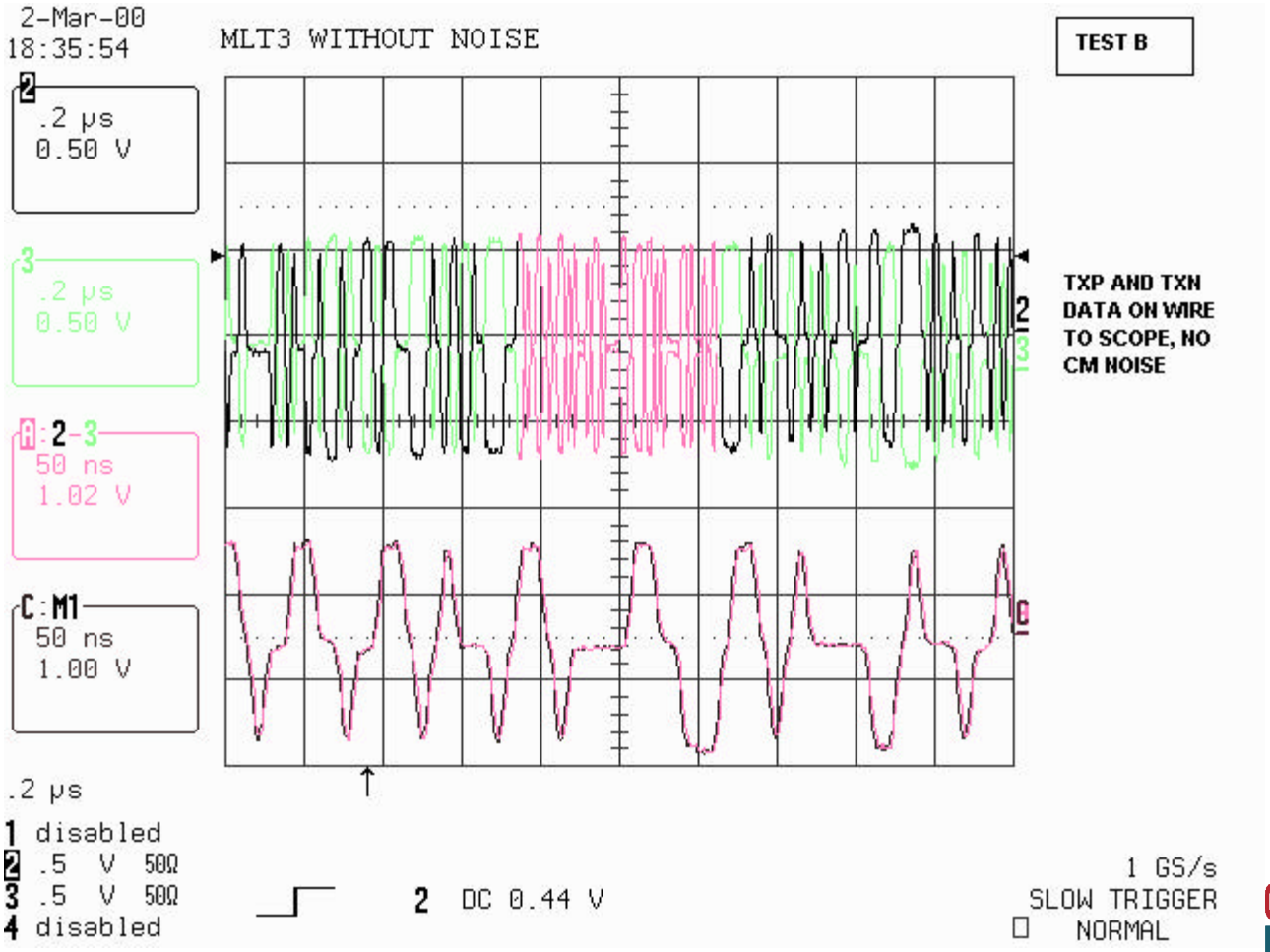
Test Schematic



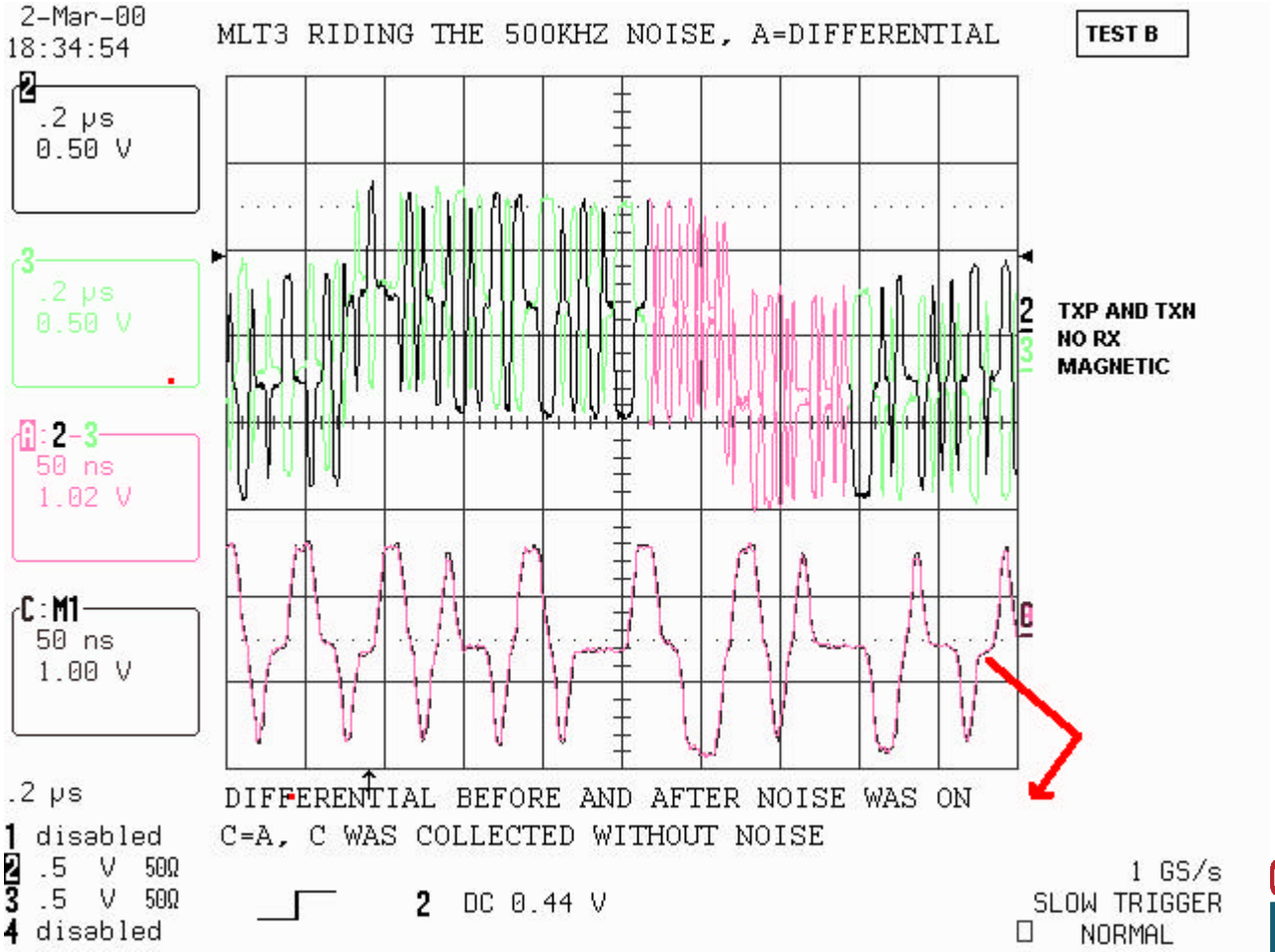
Differential Voltage at the Transmitter Due to Center Tap Noise Voltage



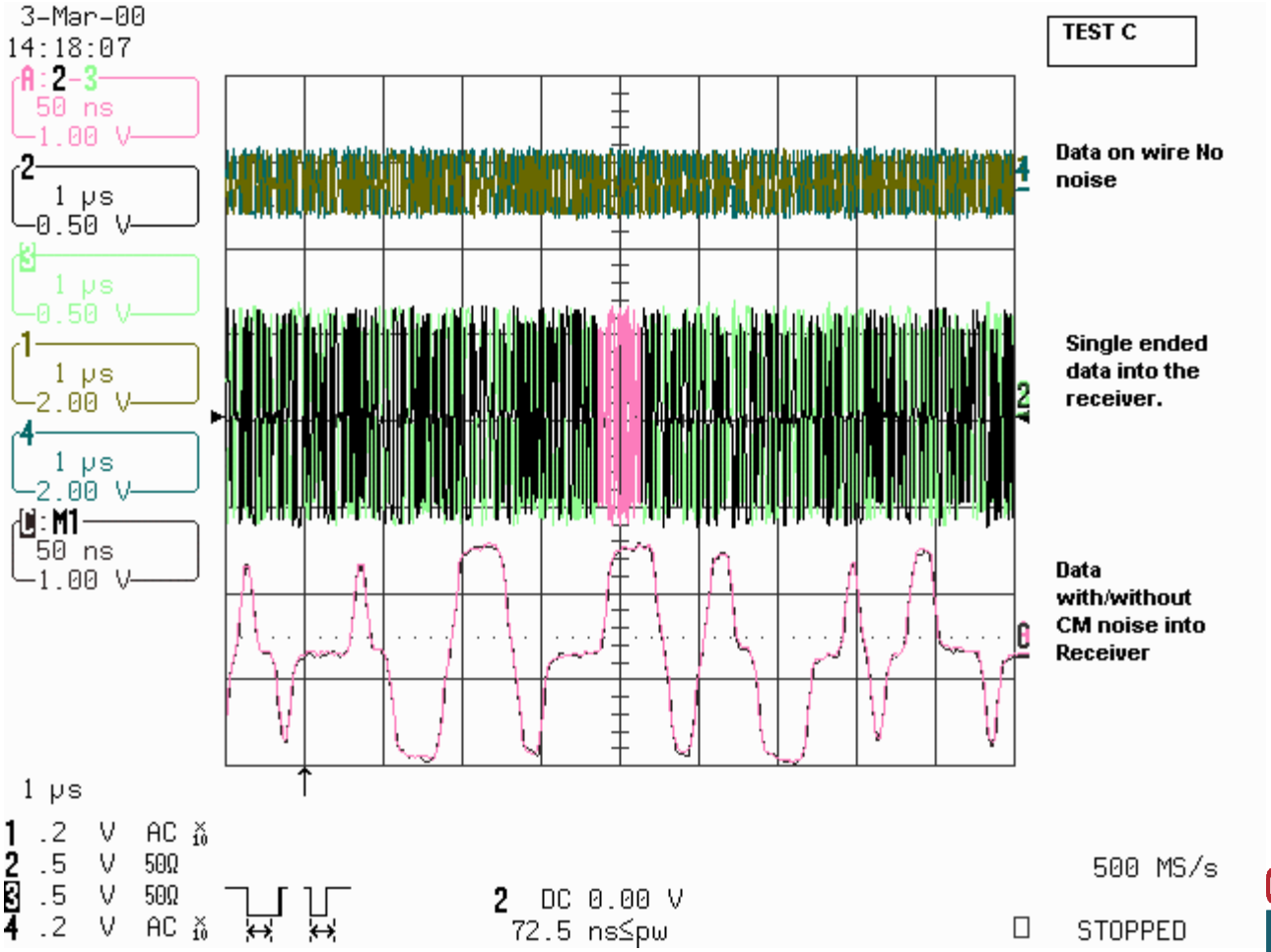
Signal on the Wire w/o Noise



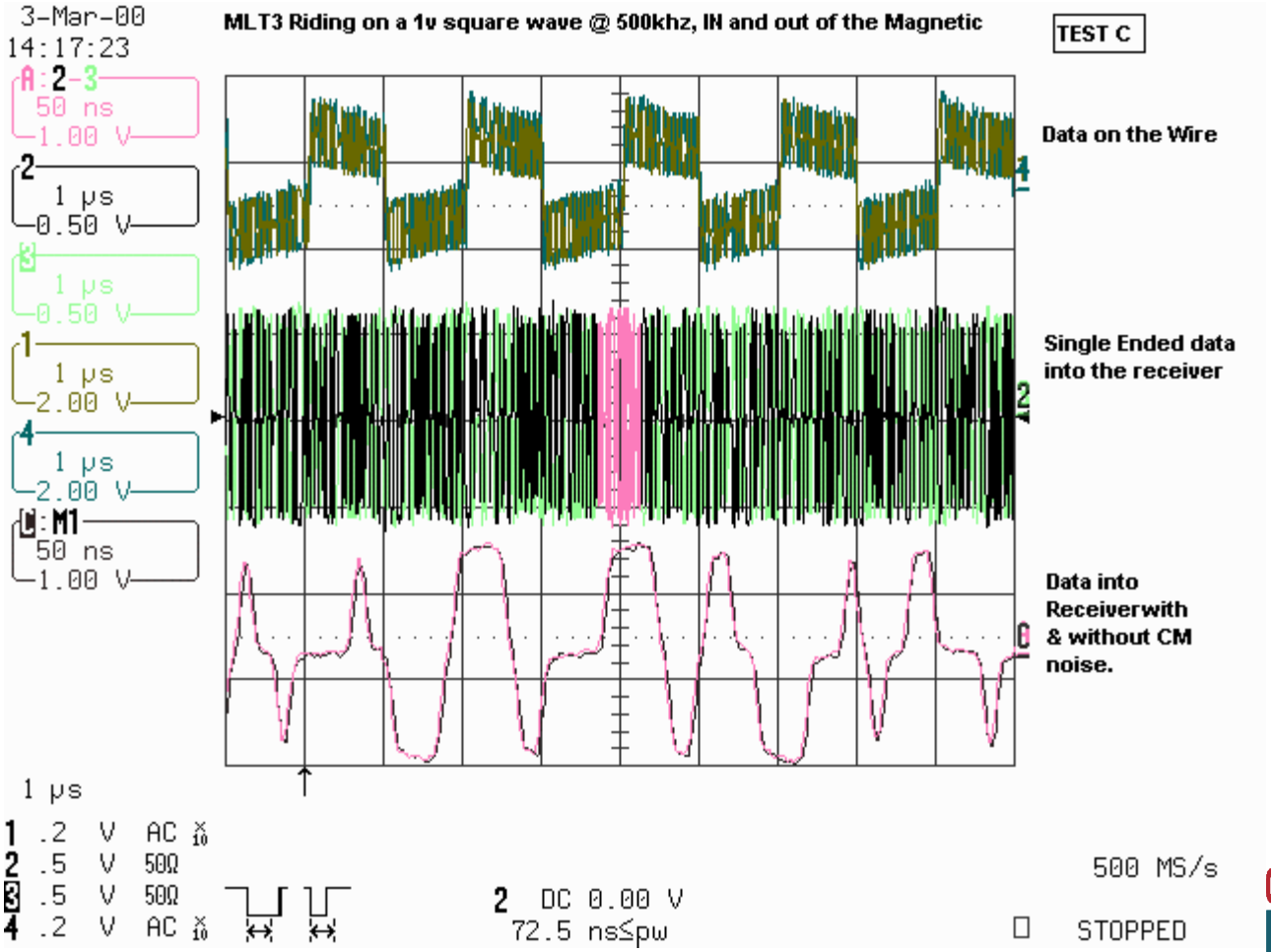
Signal on the Wire With Noise



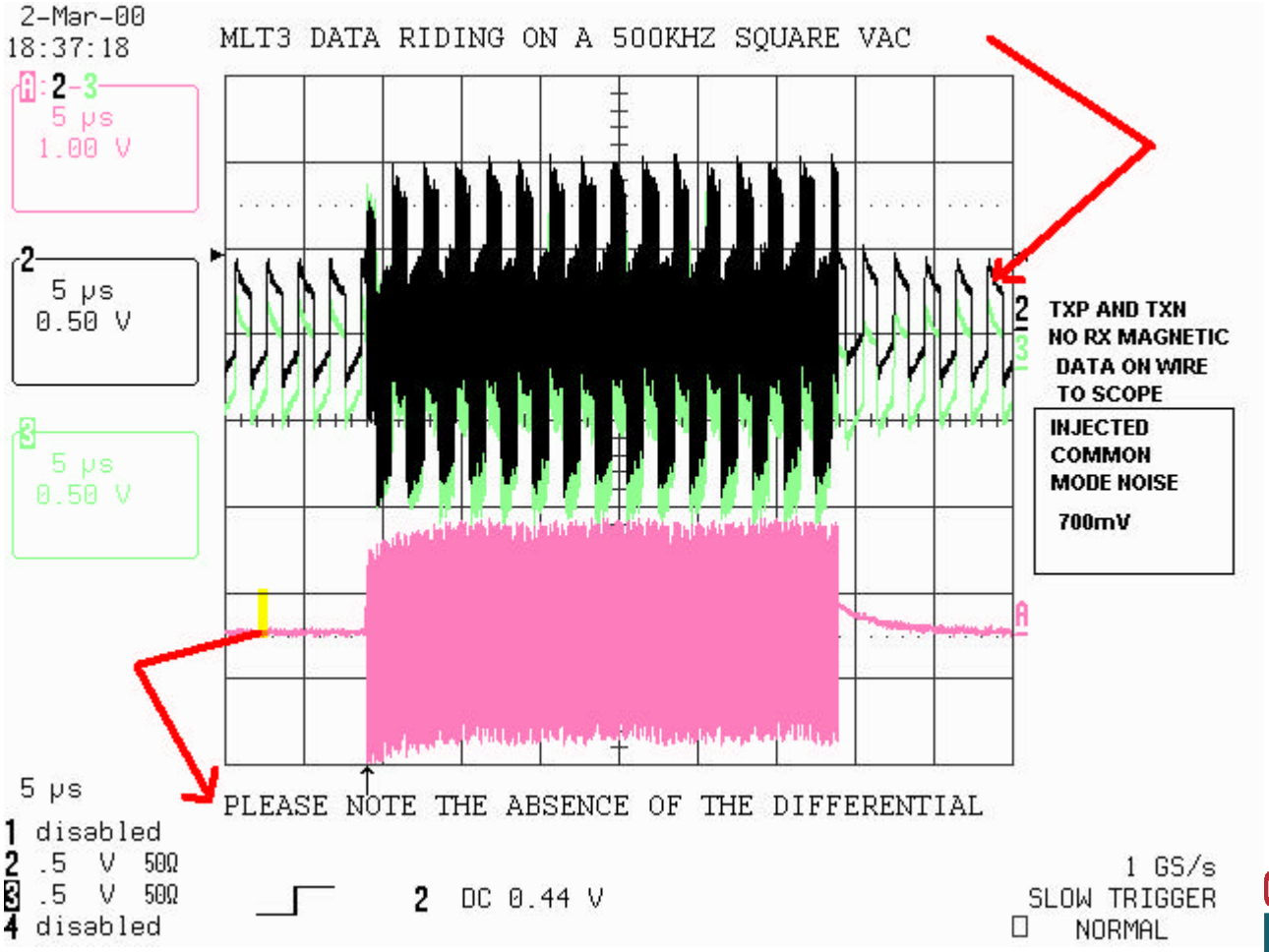
Signal into Phy RX w/o Noise



Signal into Phy RX with Noise



Signal on the Wire with Noise



Conclusion

- AC Filter the DC Power Supply into the Center Tap, a clean DC power will insure that no common mode to differential conversion can affect the receiver.
- Along with our past presentation of the ability of the magnetics to deliver up to 300ma without any effects on the MLT3 signal, this insures that a signal-pair powering solution has the potential of accommodating the 1000BT and the cables with only 2-operational pairs.