

IEEE 802.3af DTE Power Meeting in Tampa Florida

Tuesday 11/7/00

- Primary goal for this meeting is to settle on discovery on this meeting so we can have a standard.
- Agenda .. (see reflector)
- Voting membership requirements
- Attendance books
- Future meetings: Interim meeting January 8-12, 2001 - Irvine, CA.; Plenary meeting March 12-15 Hilton Head, SC.
- Objectives for this meeting: Discovery decision, review status, create new long-term timeline, create work plan to make up for lost time, charter editor for a new draft, ...
- Presentation guidelines
- Short-term schedule
- DTE power objectives
- 802.3af requirements
- Presentations: UTP cable modes, How much noise is too much?, Detection methods - reliability analysis, resistive signature and detection summary feasibility, resistor signature analysis, ...

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PRESENTATIONS
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1. UTP cable modes; and How much noise is too much?
both presentations by Rick Brooks of Nortel Networks.

- + Presenter points out that power supply noise (i.e. a switcher) is where the problem will be if there is a noise problem.
- + There seems to be a discrepancy between what some people call common mode, differential mode and pair-to-pair mode.
- + Roger K. requested a copy of the schematics of the circuit used for test in order to reproduce the measurements in the lab.
- + CISPR22 conducted emissions requirements will be a problem due to the DTE switching power supply and the implementation of the power routed to the RJ45 connector.
- + There might be a need for an external capacitor or component to dampen the noise.

2. Detection Methods - Reliability Analysis by Yair Darshan of PowerDsine.

- + Objective to find out which of the two methods (AC

Coupled Diode and Resistor+diode) is more susceptible to false detections.

+ There is confusion as to whether or not the two diodes in the "Resistor+diode" method are physically required or are part of the auto-polarity circuit. Robert L. later clarified that the diodes may or may not be there physically since they may already be in the polarity guard.

+ AC diode coupled method falls in the realm of a "behavioral" detection scheme. The resistor+diode method falls in the realm of an "absolute" detection scheme.

3. Test Results of Nortel and Lucent units by Michael McCormack of 3COM.

+ No problems found

4. "Resistive" Signature and Detection Protocol Summary and Overall Feasibility by Robert Leonowich, Don Stewart plus other people from Lucent Technologies and Avaya.

LUNCH

5. Resistor Signature Analysis and "Resistance Detection" Tolerance Allocation and Test Limits by Dieter Knollman, consultant to Avaya and Don Stewart of Avaya.

+ Use delta measurements to get rid the leakage of the diodes and temperature changes but not the resistance.

+ Refer to ipc.org website

+ Question regarding the 50 Hz and 60 Hz pickup on the cables and its effect on the measurements. From the input in the audience it appears this would not pose any problem to an analog implementation of the circuit. Similarly for the microcontroller since it is programmable and a simple algorithm can average out any noise problems.

6. Coupled Diode Discovery It works; and Will discovery affect AM radio. Both presentations by Rick Brooks of Nortel Networks.

+ Extensive summary of all the tests done related to EMI, ESD, EFT, with 25 pair cables, etc.

+ Biggest issue is the power supply noise and not the discovery circuit.

+ If anything is going to affect AM radio is switching power supply noise.

Acknowledgement from the audience to the people that did the extensive work for both methods to prove they work.

3PM.

Raise of hands of those that think both methods work fine. Most of the audience raised their hands.

7. PHY Support for Diode Discovery Cost Analysis by Kevin Brown of Broadcom Corp.

+ 10% more cost of the PHY and no more than 10% increase in die size.

8. Diode Detection and 1000BASE-T by Kevin Brown of Broadcom Corp.

9. Diode Discovery Process Power Level Detection by Robert Muir from Intel.

+ 10% increase in PHY cost plus 30 to 40 cents for the transformer (this statement is not in the IEEE web site slides)

+ Four different capacitor values could be used to manage power from 4 to 29.2 W over two cable pairs.

+ Question from Roger K. how can an open, short, and over current protection be done with this scheme?

10. Voting. Task force vote.

MOTION by Steve:

"Straw poll vote to which ever method wins over 50% wins and that's the motion that gets forwarded to 802.3".

+ variation proposed to do the above and then do a formal vote.

ALL PRESENT:

+ Preferred "diode" detection = 15

+ Preferred "resistor" detection = 33

+ Abstained = 6

802.3 VOTERS:

- + Preferred "diode" detection = 10
- + Preferred "resistor" detection = 18
- + Abstained = 5

MOTION 1: Move that 802.3af select the "resistor" discovery technique.

- Moved Bill Quackenbush
- Second Robert Muir
- Technical 75% Y:29 N:0 (zero) A:6
- Motion Carries

MOTION 2: Adjourn
Moved and seconded.

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IEEE 802.3af DTE Power Meeting in Tampa Florida

Wednesday 11/8/00

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PRESENTATIONS (continuation from yesterday) =====

1. DTE Power Differential Noise and Common Mode Voltage Requirement by Terry Cobb of Avaya.

- + Recommended two requirements for the PHY, one for the differential noise voltage and one for the common-mode voltage as referenced to ground.
- + Bill Q. recommended that these requirements be a reference to the standard that already states this.
- + Steve recommends that even if we reference them we should include at least a portion in our standard. Apparently not all countries accept all standards and that is why it is to our benefit to include the statements.
- + There is no compliance to a draft standard.

MOTION 3: Accept these two requirements in our draft.

Moved: by Terry Cobb

Discussion: Roger K. he would like to test these numbers in the lab. Terry

indicated that he will include the figure in the draft.

Second: by Sterling Vaden

Technical 75% Y: 43 N: 3 A: 5 ALL
Y: 27 N: 2 A: 4 802.3 VOTERS

2. DC Requirements for Wire and Cable from Industry Standards by Sterling Vaden

3. A Solution to Environment B Power by Mike Edwards and Paul Moore of Nortel Networks.

+ Paul stated that his specifications for noise were given to their power supply vendor in order to allow Nortel to pass CISPR and the data is not meant to be part of the standard.

+ Couple of people recommended that this information be included in the standard as an appendix or as additional information since these numbers for

the power supply will allow a vendor to meet the CISPR 22.

+ Our standard will be as brief as possible but will contain a lot of useful information to make sure someone can build something that works.

4. DTE power via MDI management straw man proposal by Nick Stapleton of 3COM.

+ Legacy devices that do not auto negotiate do not need power and do not offer next page feature, so this is not an issue.

+ Karl N. raised the question of how do we want to do this, is "next page" the best way? is there another better way? Both at the physical level or at the protocol level present their own problems.

+ Question raised: Is adding an "average power" in addition to the "maximum power" number something that most feel should be part of this? Response:
: circulate responses via the reflector to start a dialog of what is reasonable.

ALL PROPOSED PRESENTATIONS COMPLETE, NOW REPORTS FROM ADHOC TEAMS.

1. Draft Power Supply Specification Submission by Arlan Anderson of Nortel Networks.

+ The implementer needs to determine whether to build a PD for an environment A or B.

+ Multiple people raised concerns that having multiple environment products could lead to interoperability problems.

+ We may need to reconsider an earlier decision on the environment B requirement if we feel we have more information now that indicates we should pursue.

+ Lucent said that when we hit 42 volts the batteries get damaged.

STRAW POLL indicated that most people want to have this reconsidered.

MOTION 4 made by Karl but tabled to go to lunch (see below).

LUNCH

Talk about management direction, clause 33 and MDIO extension (from the 802.3 Chair):

a) i.e. use hardware registers; read-only for status, read-write for control.

b) Since management can get complicated, what we want is to enable the "management project" instead of doing the project.

c) Go to the 802.3af web site and take a look at a proposal by the 802.3ae

task force to use "indirect addressing" for register access.

d) Our job as hardware people is to describe the function of the bits in the

registers, i.e.. bit X indicates that this port can not provide power because the maximum power available from the power supply is now being used

by other ports.

MOTION 4: The PSE output voltage shall be within the range 42 VDC to 56 VDC.

Moved: by Karl Nakamura

Discussion: lots of arguments on batteries or no batteries

Second: Arlan Anderson

TECHNICAL 75% Y: 21 N: 19 A: 12 ALL
Y: 17 N: 8 A: 7 802.3 Voters

MOTION 4 FAILS.

MOTION 5: The PSE output voltage shall be within the range 44 VDC to 57 VDC.

Moved: by Arlan Anderson

Discussion:

Second: Karl Nakamura

Paul: friendly amendment to move it to 57 VDC from 56 VDC

TECHNICAL 75% Y: 32 N: 3 A: 13 ALL
Y: 23 N: 2 A: 7 802.3 Voters

MOTION 5 PASSES (802.3 Chair said we get to make our own rules, so decision

was made to not include the abstaining votes).

Mike McCormack talked about:
802.3 Standard Structure of Standard and
Work assignments to assist with the sections of the first draft.

WORK ASSIGNMENTS:

PSE-

- High level state machine - Mike McCormack
- Detection Protocol - Don Stewart
- Power supply - A Anderson
- Midspan management interface - Geoff Thompson
- Management registers - Nick Stapleton

PD-

- Detection signature - D. Stewart
- Power Supply - A Anderson
- Management registers - Nick Stapleton

APPENDICES-

- Detection signature / protocol explanation
- Power supply limits explanation
- Loop characteristics - S Vaden

Reviewed long term schedule: Standard for September 2001 (may be impacted by motion 6 below)

MOTION 6: Move the Task Force schedule be adjusted to task force review in January 2001 802.3 interim and Working Group ballot at the March 2001 802 Plenary.
Moved: by Karl Nakamura
Second: Paul Moore

PROCEDURAL 50% Y: 42 N: 0 (zero) A: 5 ALL

MOTION 6 carries.

MOTION 7: Charter the 802.3af editor to produce a new draft incorporating the work and motions of the committee as Draft 1.1.
Moved: Arlan Anderson
Second: Jennifer Rasimas

PROCEDURAL 50% Y: 45 N: 0 (zero) A: 3 ALL

MOTION 7 carries.

MOTION 8: Move to accept the minutes of the September interim.
Moved: H Hinrichs
Second: L Leo

PROCEDURAL 50%
MOTION 8 carries by acclimation.

MOTION 9: Next Task Force meeting will be in Irvine, hotel and details
will
be double checked.
MOTION 9 carries by acclimation.

MOTION 10: Move to adjourn.
MOTION 10 carries by acclimation.

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Recording Secretary

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