

**Minutes of the Power via the MDI Task Force  
Interim Meeting, May 24-25  
Ottawa, Canada**

The Meeting was called to order by Steve Carlson, chairman at 8:45 am, May 24, 2000. Steve Buck, TDK was asked to be recording secretary for this meeting. The first Item was a statement of the objectives for week

- Continue to define the constraints
- Map possible solutions against the constraints
- Make decision on voltage, current levels based upon data
- Decide on powering technique and pair usage
- Decide on discovery mechanism

It was noted that there were a number of new participants (about 20 or 30%).

The agenda was presented to the group, no changes to the agenda were presented. The agenda included the following administrative items:

- Task Force Status
- Par approved by NESCOM 1/00
- Details of the E-mail reflector
- Discussion on the use of reflector (e.g. no flaming)
- Discussion of Working Group voting membership rules
- Future Meetings:
  - Plenary July 10-14 La Jolla, Ca.
  - Interim – September 11-14, Boston, Mass.
- Statement of Objectives
- Presentation guidelines
- Short Term Schedule
- Task force Objectives

The Agenda and Opening remarks are posted separately to the Website.

This was followed by a short discussion of the decision list (a list of outstanding questions to be answered by the group and a review of the requirements list.

- Maximum Voltage (Objective 5)
- Maximum and minimum current (Objective 5)
- Are classifications required, and (if so) how many (Objective 6)
- Detection to be made on same pair as power
- Which pair(s)? (Objective 7)
- What level of support for 2-pair legacy systems (Objective 7)

- Level of support for 1000BASE-T (Objectives 1 & 9)
- Determine fault behavior
- Determine type of discovery mechanism
- Single or multi-tiered discovery mechanism
- Of the known RJ-45 devices can we determine which can we live with?
- Level of support for mid-span insertion
- AC or DC
- Should we define a standard means to provide optional visual indications of the ability to supply power from a connector and/or is it currently providing power?
- Maximum voltage not to exceed SELV IEC 950

## 802.3af Requirements

- Without specifying the two and only two pairs to be utilized for DTE power, DTE power shall utilize two pair powering where each wire in the pair is at the same nominal potential and the power supply potential is between the two pairs selected. - January 2000 Interim
- Regardless of the detection scheme adopted and the power feed scheme adopted, the power detection and power feed shall operate on the same set of pairs. - January 2000 Interim
- Regardless of the final voltage selected, the DTE power max voltage shall not exceed the limits of SELV per IEC 950. - January 2000 Interim
- In order to progress we accept that there are two isolation requirements of 802.3, environment A and B per 802.3 section 27.5.3 et al, and that for the purposes of this committee we will treat as a priority for consideration environment B without precluding environment A. - March 2000 Plenary
- For DC systems the minimum output voltage of the source equipment power supply shall be at least 40VDC. - March 2000 Plenary
- For DC systems, the source device shall be capable of supplying a minimum current of at least 300mA per port. - March 2000 Plenary
- The solution for DTE Powering shall support mid-span insertion of the power source. - March 2000 Plenary

### **Scheduled Presentation List**

Presentations resulting from motions or other discussions are included within the minutes.

- “Basic Methods for DTE Power Delivery”, Ed Walker, TI
- “ISOLATION CONSIDERATIONS for MDI POWER SOURCES and MDI-POWERED DTE”, John Jetzt, Donald Stewart, Lucent
- “Common Mode and Differential Mode Discovery Techniques,” Rick Brooks, Nortel
- “Update on the Diode Discovery Process,” Robert Muir, Level One
- “IEEE 802.3 DTE Power via MDI Detection and Signature Protocol,” Richard Glaser, John Jetzt, Dieter Knollman, Robert Leonowich, Donald Stewart, Lucent
- “Proposal for Consensus,” Ralph Andersson, TDK
- “Cabling from the User Perspective,” Bob Love, Dave Kooistra, IBM
- “DTE Power at the Endpoint,” Karl Nakamura, Cisco
- “Phone Discovery at the Mid-Span, Karl Nakamura, Cisco
- “DTE power via MDI, An Alternative Proposal,” Hans Sitte, Aligent
- “Insertion and Return Loss with Mid-Span Insertion,” Mike Nootbar, TDK
- “Transformer Coupling at the Mid-Span,” Kevin Brown, Broadcom
- “DTE Power via MDI, G. Vergnaud, R. Gass, ALCATEL
- “Powering and Discovery Alternatives,” Arlan Anderson, Nortel

### **Motion to approve agenda**

Moved: Mike McCormack

Second Bill. Quackenbush

Approved by acclimation

### **1st Presentation - Basic Methods for DTE Power Delivery**

Ed Walker, TI Analog Field Applications.

Break

Meeting resumed at 10:30AM

**Presentation - Isolation Considerations** -John Jetzt, Donald Stuart, Lucent

**Presentation - Common Mode and Differential Discovery Techniques** - Rick Brooks, Nortel

Lunch Break

Meeting resumed at 1:15 PM

**Presentation - Update on Diode Discovery Process** - Robert Muir, Level One

**Presentation** - Detection and Signature Protocol - Bob Leonowich , Richard Glaser et al., Lucent

Break

Meeting resumed at 3:10PM

Geoff Thompson made a short speech on IEEE Patent Policy. The new IEEE policy now requests a letter disclosing patents a head of time, not after a standard is approved

**Presentation** - TR42.1 Liaison report - Chris Dominico  
TR42 has set up a task group to answer the questions from IEEE 802.3

**Presentation** - DTE Power over MDI - Building Consensus - Ralph Andersson, TDK Semiconductor

**Presentation** - User requirements for Cabling Support - Robert Love, LAN Connect Consultants, Dave Kooistra, IBM

**Presentation** - Power over the MDI - Karl Nakamura, Roger Karam, Cisco Systems

**Presentation** - Power over the MDI using the two signal pairs - Karl Nakamura, Roger Karam, Cisco Systems

**Motion to adjourn:** McCormack Time: 5:24PM

Second: Quakenbush

Approved by acclimation

**Thursday May 25, 2000**

The Meeting was called to order by Steve Carlson, chairman at 8:30AM, May 25, 2000

**Presentation** - DTE Power via the MDI, an Alternative Proposal - Hans Sitte, Agilent

**Presentation** - Return Loss with Mid-span - Mike Nootbaar, TDK Semiconductor

**Presentation** - Mid span Insertion using Transformer coupling - Kevin Brown, Broadcom

Break

Meeting resumed at 10:10AM

**Presentation** - DTE Power via the MDI - G. Vergnaud, R. Gass, R. Jaeger, Alcatel

**Presentation** - Consideration in selecting feeding voltage/current Amir Lehr, Yair Darshan, Avinoam, Levy - PowerDsine

**Presentation** - Powering and discovery Alternatives - Arlan Anderson, Nortel

**Presentation** - Proposal to Move forward - Chris Cullin – Cisco Systems

**Presentation** - Consensus Proposal for DTE power via the MDI - Dan Dove, HP

Lunch Break  
Meeting resumed at 1:20PM

**Motion 1:** All technical motions which are passed from this time forward, unless specifically excluded in the wording of the motion shall be incorporated into the document entitled 802.3 requirements which was created at the March Plenary. The editor is to maintain this document and update it within one week of the end of the meeting

Moved: Michael McCormack  
Second: Arlen Anderson  
Technical: Not Procedural  
Y:44 N:0 A:2 Time: 1:25PM  
Motion Passes

**Motion 2:** The standard for DTE power distribution will use pairs associated with pins 4-5, and 7-8 as the primary pairs for distributing power over the MDI.

Moved: Mike Nootbaar  
Second: Amir Lehr  
Technical: Yes 75%  
Y: 32 N: 14 A: 6 Time:2:11  
Motion Fails

**Motion** to table this motion until after Dan Dove Presentation. Yes:24 No:14 Time: 1:30  
Motion Passes

**Motion 3:** It is an objective that the DTE shall be required to accept power from both the 12,36 and the 45,78 pair-sets with the requirement that those pair-sets both use the same method of detection.

Moved: Dan Dove  
Second: Robert Love  
Technical: yes 75%  
Y: 27 N: 21 A: 6 Time:2:03PM  
Motion Fails

**Motion 4:** 802.3af systems shall distribute DC Power

Moved: Michael McCormack  
Second: Bill Quackenbush  
Technical: yes 75%  
Y: 53 N: 0 A: 2 Time: 2:15PM  
Motion Passes

**Motion 5:** Move it is an objective to come up with one and only one discovery method.

Moved: Robert Love  
Second: Robert Muir  
Technical: yes 75%  
Y: 31 N: 11 A: 7 Time: 2:32

Due to the closeness of the vote a recount was taken  
Y: 31 N: 11 A: 11 Time: 2:34  
Motion Fails

**Motion 6:** Move: If both pair sets may be used for powering, Midspan shall supply power on 45,78 - Supplying power on pins 12,36 from the midspan is for a later revision of the standard.

Moved: Bob Love  
Second: Don Pannell  
Technical: Yes 75%  
Y: 28 N: 4 A: 5 Time: 2:55PM  
Motion Passes

**Motion 7:** 802.3af proceed with the development of a low frequency, low energy common mode detection method.

Moved: Dan Dove  
Second: Amir Lehr  
Technical: Yes 75%  
Y: 33 N: 8 A: 4 Time: 3:05 PM  
Motion Passes

**Motion 8:** The transmission of data across transformers placed in mid-span insertions is outside of the scope of this task force and shall not be an objective.

Moved: Ralph Andersson  
Second: Robert Muir  
Technical: Yes 75%  
Y:10 N:18 A: 13 Time: 3:39PM  
Motion Fails

The discussion on Motion 8 spawned a presentation:

**Presentation** - Physical Layer Topology considerations for DTE power over the MDI - Sterling Vaden - Superior Modular Products  
Discussion of cable modeling and connector issues such as loss, number etc. Patch cord issues. Insertion and return loss

**Motion 9:** That it be an objective of the 802.3af task force to determine the optimal method to apply power at the "mid-span" and "DCE end" to minimize data-path impairments at a reasonable cost.

Amendment: substitute "DCE end" for the word "Mid-Span"  
Moved : Norm  
Seconded: Chris Cullin  
Withdrawn, added as friendly by D. Dove

Moved: Dan Dove  
Second: Ralph Andersson  
Technical: Yes 75%  
Y: 26 N: 3 A: 12 Time: 3:57PM  
Motion Passes

**Motion 10:** The 802.3af task force shall consider 1000BASE-T support only for “DCE-end” power insertions.

Moved: Ralph Andersson

Second: James Polk

Technical: Yes 75%

Y: 6 N: 26 A: 11 Time: 4:05PM

Motion Fails

**Motion 11:** If it can be shown that the DTE support of both sets 1236 and 4578 is both technically and economically feasible, the objective is to require that the DTE support both.

Moved: Mike Nootbaar

Second: Bob Love

Technical: Yes 75%

Y: 23 N: 16 A: 3 Time: 4:15PM

Motion Fails

**Motion 12:** That DTE must be able to accept power on Pairs 4-5, 7-8 and be optionally available on Pairs 1-2, 3-6

Moved: Nick Stapleton

Second: Arlen Anderson

Technical: Yes 75%

Y: 7 N: 29 A: 5 Time: 4:30PM

Motion Fails

Mike McCormack (editor 802.3af) talked about the need to progress on a draft of the specification. He intends to include straw poll information even though it has not been approved. A draft will be available by the next meeting.

Action Item for 802.3af:

Tutorial at next Plenary: A 1 hour presentation followed by a ½ hour Q&A

Roger Karam, Carl Nakamura, Ralph Andersson and Bob Leonowich have volunteered to do the presentation.

Geoff Thompson, Steve Carlson, Roger, Karam, Carl Nakamura and Henry Hinrichs to handle Q&A.

**Motion 13:** That we accept the powering of the DTE via either sets of wire pairs (1-2, 3-6 and 4-5, 7-8), in anticipation of the detailed technical and economic feasibility of each having been shown prior to the Working Group Ballot.

Moved: David Law

Second: Roger Karam

Technical: Yes 75%

Y: 32 N: 4 A: 3 Time: 5:27PM

Motion Passes

**Motion 14:** To approve minutes from Albuquerque.

Moved: Steve Carlson

Second: Tom Dineen

Technical: no

Motion Passed by acclimation. Time: 5:30PM

Liaison Letter from Bob Bell chair TR41.4

**Motion 15:** Send a response to TR41.4

Moved: Arlen Anderson

Second: Tom Dineen

Technical: No

Motion Passes by acclamation      Time: 5:40PM

**Motion to adjourn**

Moved: Steve Carlson

Second: Karl Nakamura

Technical: No

Motion Passed by acclimation      Time: 5:41PM