

# **IEEE 802.3at CLASSIFICATION REQUIREMENTS AS OF 3-9-06**

IEEE 802.3at  
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# IEEE 802.3at CLASSIFICATION REQUIREMENTS

## Agreement

\*Note: Layer 1 is defined as the common mode power path. Layer 2 is MAC based differential communication.

- Backward compatibility with 802.3af is required.
- 25K signature resistance will not be changed.
- Mutual identification is required:
  - a. An AT-PD must be able to distinguish between AF-PSE and AT-PSE
  - b. An AT-PSE must be able to distinguish between AF-PD and AT-PD.
- PDs requiring more than 12.95W will support a layer 1 classification extension and a layer 2 classification mechanism.
- PSEs must support a layer 1 classification extension or a layer 2 classification mechanism for PDs requiring more than 12.95W.
- Power policing by the PSE based on classification will remain optional.
- An AT PSE will limit currents to AF levels when an AF PD is detected.
- An AT PSE will limit currents to AT levels when an AT PD is detected.
- 802.3af class resolution is too coarse and finer resolution will be implemented in 802.3at.
- Successive refinement of layer 1 classification by either PSE or PD will not be used.
- Adding more information into layer 1 classification such as vendor ID will not be supported.
- One of the purposes of layer 1 classification is to implement power allocation prior to powering the PD.
- High end of class power range extends beyond maximum power up to LPS limit.
- Dynamic power negotiation will not be done in layer 1\*. (It may be performed in Layer 2\*.)
- The MIB shall include information to support power management.

# IEEE 802.3at CLASSIFICATION REQUIREMENTS, CONTINUED

- **Not Agreed Upon**
- Low end of layer 1 classification power range is 2W.
- The layer 1 classification scale should be roughly Logarithmic, or log like.
  - Certainly logarithmic for high power classes
  - Probably linear for low power classes
- The number of classes in layer 1 should be in the approximate range of 30-40.

# ISSUES NEEDING FURTHER DISCUSSION

- What should the low end of the power range be; 1W, 2W, or other?
- Should we use worst-case or statistical analysis to calculate utilization and the number of classes required?
- What method should be used to implement classification?
- Is it acceptable to power for example a 20 watt PD using all 4-pair when it could be powered with only 2 pair?
- Should a 4-pair PD that fails to get power provide user with a two-level failure indication, one for an AF-PSE and another for a 2-pair AT-PSE?
- How do the proposed requirements affect system test time?
- How do the proposed requirements affect system test complexity?
- Do the proposed requirements provide a good balance between cost and benefit?
- Several questions interrelated to the architecture used for 4-pair systems:
  - Should 4P verification be done during classification or detection?
  - Should the PD have one signature (visible on all 4 pairs) or 2 separate signatures (one on Alt-A and the other on Alt-B)?
  - Should 4-pair systems be treated as two autonomous 2-pair systems?
  - In a split cable installation using a 4P AT PSE, is it expected that both PDs should receive power?

# ITEMS TO CONSIDER WHEN EVALUATING VARIOUS CLASSIFICATION METHODS

- Does the method meet all the requirements?
- How does the method affect system test time?
- How does the method affect system test complexity?
- What is the PSE cost?
- What is the PD cost?