

POE SUBCOMITTEE FAQ

What is Power over Ethernet?

The provisioning of DC power over the same cabling as Ethernet

What are the devices that drove the call for interest within the IEEE and eventually lead to the creation of 802.3af or 802.3at (PoEP)?

VoIP telephones
WLAN access points
Web Cameras
PTZ Cameras

What are the major steps in POE operations?

Detection
Classification (Layer 1 and Layer 2 based processes)
Start-up and Disconnect.
Management enhancement with 802.3at during operation

What are the advantages of the layer 2 mechanism (aka DLL classification) defined in 802.3at?

(a) Dynamic: Allows for power classification and budgeting in real time based on changing demand patterns of the PD and its application as well as the supply budget of the PSE. As an example, if the PD is a VoIP phone that wants to enable a color display, the PD can request higher power for the duration of that application. This allows the PD to classify itself based on its operational worst case rather than absolute worst case. Another good example is a VoIP phone PD that may have several USB ports. Under a classic fixed classification, the absolute worst case that would include the budget for all USB ports at worst case would be advertised, under the Layer 2 scheme, only the

(b) Fine granularity of classification: Layer 1 based classification is limited to discrete buckets. In 802.3af the optional hardware classification gave access to 3 fixed buckets. Layer 2 allows for very fine budgeting in the order of mW.

(c) Additional features such as a fall-back state: The layer 2 scheme defined by 802.3at allows the PD to report a "fall-back state" which is a meaningful lower power state that the PD may be willing to live with if needed. This is in addition to the desired power level it requires and can be used by the PSE as additional information if it wanted to dial down the power budget of the PD.

Cabling Infrastructure- what effects are compounded when cables are bundled?

The Cu cabling infrastructure has an associated DCR, which when DC current flows through it will generate heat. When cabling is bundled the impediments for the aggregate heat to escape

the bundle increases. With no knowledge about the infrastructure, 802.3at requires a 10 degree derating to accommodate the heat. Additional information about the infrastructure like the bundle size, type of cable, number of total pairs powered in the bundle, presence of shielding etc. can be used in order to reduce the 10 degree derating.

What are the major PoEP Enhancements?

Higher power

Enhanced classification and management

Layer 2 based classification (DLL) using LLDP as the transport mechanism

1000BASE-T Midspans

What is driving the need for POE in residential use?

Home office equipment

Video equipment such as digital camcorders, MP3 players, DVD players, musical instruments