Proposal to the IEEE 802.3at Task Force

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“Power parameters for Layer-2 MIB”

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Power parameters for Layer-2 MIB

Background:

- **This presentation is only a preliminary discussion about “Power Parameters” for Layer-2 MIB variables**
- **All the structures and examples shown in this presentation are ONLY for illustration purposes in order to highlight the area where further work needs to be done**
- **Detail work is in progress to nail down the MIB types and the field definitions and values**

Power parameters for Layer-2 MIB

Goals:

1. In order to achieve efficient “Power Management” in PSE/PD Systems using Layer-2 there is a need for an AT PD to advertise different types of “Power Parameters” to PSE depending on the mode of operation of the PD
2. Clear definition is needed for “Power Parameters” so that all PSEs and PDs interpret these numbers in a consistent manner

Power parameters for Layer-2 MIB

Goals:

3. **We need to have consistency in interpreting power numbers when there are different measurement methods used in PD and PSE systems from different vendors (analog/digital)**

   - **We may consider having upper/lower bounds or max/min limits to power numbers**

Power parameters for Layer-2 MIB

Example MIB variables (for illustration ONLY)

- **Full load average power (value, 1sec, bound)**
- **Full load peak power (value, 50ms, max)**
- **Operating average power (value, 1sec, bound)**
- **Operating peak power (value, 50ms, max)**
- **Statistical average power (value, value, bound)**
- **Statistical peak power (value, value , max)**
- **Boot up classification power (value)**
- **Operating classification power (value)**

etc.

Note: The unused MIB variables can be assigned with "NULL"

Power parameters for Layer-2 MIB

Example "Power Parameter MIB structure" for Illustration ONLY

Power MIB variable name ( )

{

power number:	**watts**
duration:	**msec**
limit:	**max, min**
positive bound:	**%num**
negative bound:	**%num**

etc.

}

Note : "par" can have NULL value

IEEE 802.3af definitions

What we have today?

IEEE 802.3af- Section 33.3.5.2 Input average power

"The specification for PPort in Table 33–12 shall apply for the input power averaged over 1 second. PPort = VPort × IPort, measured when the PD is fed by 44V to 57V with 20Ω in series."

Data: According to IEEE the PPort Input voltage is 36V (Min) and 57V (max) at the PD. The Input Average Power at PPort is 12.95 Watts (max).

IEEE 802.3af definitions

What we have today?

Peak Operating Current - IEEE 802.3af – Sec 33.3.5.4

The 802.3af specifies that “The Peak Current shall not exceed for more than 50 ms max and 5% duty cycle. The RMS, DC and ripple current (Iac) superimposed on the DC current (Idc) is allowed if the current value used for power calculation is bounded by the equation

Irms = Sqrt [(Idc**2) + (Iac**2)].

Proposal for IEEE 802.3 at committee

More work to be done in the following areas

- Identify the complete set of Layer-2 MIB types in order to address the application needs of different PD types
- We need to work on how to achieve consistency in interpreting power numbers when there are different measurement methods (analog/digital) used by PD and PSE system vendors
- Looking for contributions and discussion before the next meeting