

IEEE802.3at Task Force Vport Ad Hoc

Vport Voltage Transient Requirements Yair Darshan



Background

- The EN60950 specifies SELV circuits as circuit that its output voltage is limited to 42.4Vp or 60VDC.
- There is no such definition of 10% above the DC value for transients.
- The only place that the 10% number is mentioned is for the definition "what is DC voltage?" and it says that a DC voltage is a voltage with an ac voltage content less than 10% otherwise it considered to be AC voltage which SELV limits it to 42.4Vp.
- Based on the above, table 33-6 in 802.3af was developed.
- The maximum value of V_{open} [V_{pp}] which is equal to 10% of V_{port} . V_{port} is limited to 44V to 60V at all times. It is confirmed again in item table 33-6 3b. It means that all of those who implement AC disconnect should work with AC voltage peak to peak limited to 4.4Vpp if they are using 44VDC source.
- We can not change it due to the following:
 - 1. Exceeds since we have to be backwards compatible i.e. AF PD connected to AT PSE should see max. 60V!



From 802.3af

Table 33–6—PSE PI parameters for AC disconnect-detection function

Item	Parameter	Symbol	Unit	Min	Max	Additional information
AC signal parameters						
1a	PI probing AC voltage	V_{open}	V_{pp}	1.9	10% of the average value of V_{Port} , $44V < V_{Port} < 60V$.	Includes noise, ripple, etc. V_{open} is the AC voltage across the PI when the PD is not connected to the PI and before the detection of this condition by the PSE.
		V_{open1}	V_p		30V, $V_{Port} \leq 44V$.	V_{open1} is the AC voltage across the PI when the PD is not connected to the PI and after the detection of this condition by the PSE and the removal of power from the PI.
3b	PI voltage when PD is disconnected	V_{Port}	V_p		60	



Therefore

- PSE port voltage under any operating conditions should not exceed 60V per IEEE802.3af.

■ Suggested Correction:

- **Propose a PSE PI voltage limit, for transients present more than 30 μ s, of 7.6% below the PSE Vport_min level for less than a period of 250 μ s. Positive voltage transients shall not cause the port voltage to exceed 60V limit. ~~and 10% above the Vport_max level.~~**

