

IEEE802.3at Task Force

Vport Ad Hoc

Multiple Classification Attempts (MCA) Recommendations

July 2006

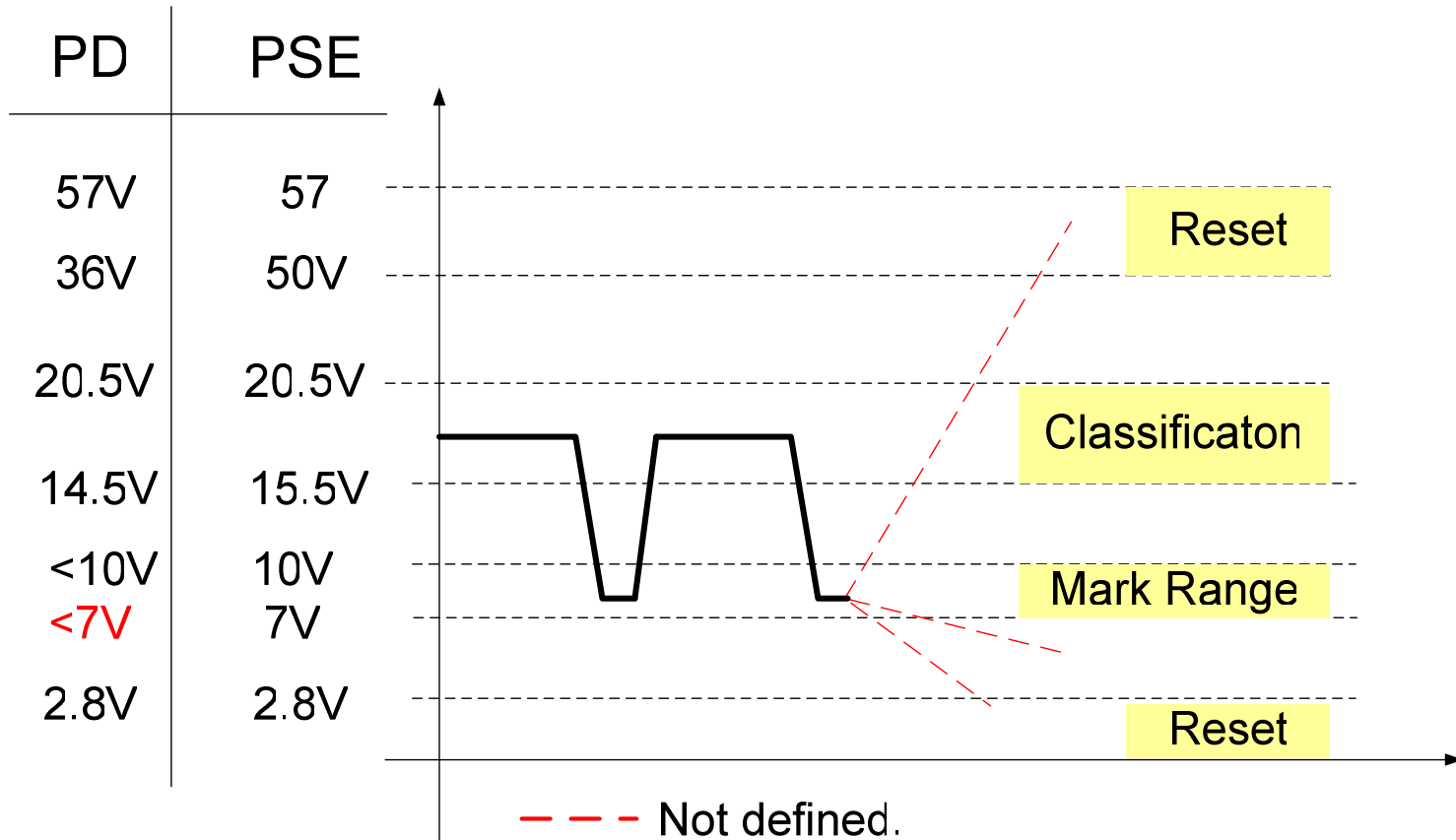
Yair Darshan
PowerDsine



Objective

- To suggest voltage, current and timings requirements for the Multiple Classification Attempts concept.
- Based on detailed analysis presented to the Classification Ad Hoc group.

PSE and PD voltages during enhanced classification



PSE Timings

Recommended PSE Timing Specifications			
Classification Wave form Section	Minimum [ms]	Maximum [ms]	Notes
1 st classification attempt	10	30 (Recommended)	See note 3
1 st and 2 nd voltage mark rise/fall time, <u>tr+tf.</u>		1.5	Informative only. See note 1
1 st and 2 nd voltage mark duration	2	4	
2 nd classification attempt	10	30	See note 3
Total classification time	24	68	See note 2

Notes

1. Tf should not be part of the standard due to the fact that it is determined by Iclass1_min, Cport_max and maximum voltage change from Vclass_max to Vmark_low.
2. 2nd finger need to end below 10V to allow PD to recognize that two classification attempts were done and any other Vmark phenomena should be ignored.
3. 30ms may be reduced to get total classification time of 75ms if 3rd finger is going to be used. We may need to evaluate effects on multi-port system cost related timing issues.



Voltage and Current requirements

Recommended Voltage and current Specifications				
Classification Wave form Section	PSE		PD	
	Minimum [V]	Maximum [V]	Minimum [V]	Maximum [V]
Classification attempt	15.5	20.5	14.5	20.5
Classification Current	<u>Iclass 1</u>	<u>Iclass 4</u>	<u>Iclass 1</u>	<u>Iclass 4</u>
Mark voltage range	7	10	6.37	10
Mark Voltage transition range	10	15.5	10	14.5
Classification Current prior to transition detection.	NA	NA	<u>Iclass 1</u>	<u>Iclass 4</u>
Classification Current after transition detection.			2mA	<u>Iclass 4</u>
Reset classification circuitry – Lower range	0	2.8	0	2.8
Reset classification circuitry – Upper Range	TBD (50V?)	57	TBD (30? 36V?)	57

Additional requirements for 802.3at PD

- During detection phase, classification circuitry and other circuitry should not consume more than 10uA in addition to R_{sig} , forming total $25K \pm 5\%$. (Similar to 802.3af)
- After 1st classification attempt, PD should consume at least I_{class_1} current until PD detects V_{mark} transition. then 10V. Resetting from this state will occur on Reset voltage range (low and/or high range)



Classification Table

■ 2 Classification attempts allow

- 4 x 802.3af classes and
- 9 x 802.3at new classes covering up to 30W per 2P and
- 3 x 802.3at new classes for covering future use up to 50W per 2P.
- Total of 16 classes for layer 1

■ Hence 2 fingers is enough.

■ 802.3at PSE need to perform 2 attempts for determine PD type.

■ 802.3at need to count number of attempts to determine if af or at PSE is present.

Summary and Recommendations

- To accept the MCA concept as base line to the 802.3at draft
- To accept the voltage, current and timing tables as base line for the 802.3at draft

