Comment (33.3.7 Page 131 line 28, Updating Table 33–28—PD Items 6 and 7 and Table 33-17 items 7 and 8)

Addressing comments

This comment addresses the following comments

#108 PSE iinrush cleanup:

#111 Title of 33.2.8.5.1. It needs to be clear and connected to the special requirements in this subclause.

#112 is about 33.2.8.5.1 text to get rid of the “optionally”. This was the exact intention that this is optional to other Inrush min value that doesn’t requires that special test in 33.2.8.5.1.

#113 is about the assumed generality of the requirements in 33.2.8.5.1 for all Type 4 when connected to all class 7,8 PDs which is not the case here.

#201 Adjustments to Table 33-17 and 33-28 due to removing “same class” and “different class” terms.

We need to do some adjustments to Table 33-28 item 6 and Item 7 after the last changes we did in D1.6 to delete the "with the same class over each pairset" and "with different class over each pairset" for the dual-signature description that causes some ambiguity and inconsistency to the definitions in Table 33-28.

Suggested Remedy

Table 33–28—PD power supply limits

Item	Parameter	Symbol	Unit	Min	Max	PD Type	Additional Information
Input Inrush current as function of the assigned class when the PD is limiting the current during inrush period.							
6	Single signature PD Class 0 to 6.	Inrush-PD	**A**		**0.4**	**All**	Peak value see 33.3.7.3
	Single Signature PDs Class 7 to 8.				**0.8**	**4**	
	Dual-Signature PD class 1 to 4				**0.4**	**3**	
	Dual-Signature PD class 5				**0.65**	**4**	
Input Inrush current per pairset as function of the assigned class and when the PD is limiting the current during inrush period.							
7	Single signature PD Class 0 to 6.	Inrush-PD-2P	**A**		**0.4**	**All**	Peak value see 33.3.7.3
	Single Signature PDs Class 7 to 8.				**0.6**	**4**	
	Dual signature PD Class 1 to 4				**0.2**	**3**	
	Dual signature PD Class 5				**0.325**	**4**	

Table 33–17—PSE output PI electrical requirements for all PD classes, unless otherwise specified

#	Parameter	Symbol	Units	Min	Max	PSE Type	Additional Information
7	Total output current of both pairsets of the same polarity in POWER_UP state as function of the assigned class.						
	Single Signature PD Class 0 to 4.	Iinrush	A	0.4	0.45	All	See 33.2.8.5. See max value definition in figure 33-26.
	Single Signature PD Class 5 to 6. ~~Dual Signature PD Class 1 to 4.~~			0.4	0.9	3,4	
	Single Signature PD Class 7 to 8. ~~Dual Signature PD, Class 5.~~			0.8	0.9	4	See 33.2.8.5. See max value definition in figure 33-26. See 33.2.8.5.1.
	Dual Signature PD Class 1 to 4.			0.4	0.9	3,4	See max value definition in figure 33-26. See 33.2.8.5.1.
	Dual Signature PD, Class 5.			0.65	0.9	4	
8	Output current per pairset in _POWER_UP state as function of the assigned class.						
	Single Signature PD Class 0 to 4.	Iinrush-2P	A	~~0.4~~	0.45	~~3,4~~	See 33.2.8.5. See max value definition in figure 33-26.
	Single Signature PD class 5 to 6. ~~Dual Signature PD class1 to 4.~~			~~0.15~~	0.6	3,4	
	Single Signature PD Class 7 to 8.			~~0.4~~	0.6	4	See 33.2.8.5. See max value definition in figure 33-26. See 33.2.8.5.1.
	Dual Signature PD Class 1 to 4.			0.2	0.6	3,4	See 33.2.8.5. See 33.2.8.5.1.
	Dual Signature PD, Class 5.			0.325	0.6	4	

33.2.8.5.1 $I_{Inrush-2P}$ minimum and I_{Inrush} minimum requirements

A Type 4 PSE, when connected to a single-signature PD with assigned Class 7 or Class 8, may ~~optionally~~ implement a minimum ~~$I_{Inrush-2P}$ and~~ I_{Inrush} lower than defined in Table 33–17, but not less than ~~0.15A and~~ 0.4A ~~respectively~~. When a Type 4 PSE is connected to a single-signature PD with assigned Class 7 or Class 8 and uses a lower ~~$I_{Inrush-2P}$ and~~ I_{Inrush} than those defined in Table 33–17, it shall successfully power up a single-signature PD comprised of a parallel combination of ~~C_{Port} per pairset as defined in 33.3.7.3~~ 360uF and a Class 2 load within $T_{Inrush-2p}$ min without startup oscillations during the POWER_UP period, when connected to the PD through channel resistance of 0.1Ω to 12.5Ω per pairset.

A Type 4 PSE, when connected to a dual signature PD with assigned Class 5, may implement a minimum I_{Inrush} and $I_{Inrush-2P}$ lower than defined in Table 33–17, but not less than 0.4A and 0.2A respectively. When a Type 4 PSE is connected to a dual-signature PD with assigned Class 5 and uses a lower $I_{Inrush-2P}$ than those defined in Table 33–17, it shall successfully power up a dual-signature PD comprised of a parallel combination of 110uF and a Class 2 (TBD) load within $T_{Inrush-2p}$ min without startup oscillations during the POWER_UP period, when connected to the PD through channel resistance of 0.1Ω to 12.5Ω per pairset.

There are several comments that are related to 33.3.7.3:
What is the minimum Tinrush when PD is limiting current? As we discussed it should be a function of the class.
Group to discuss.

33.3.7.3 Input inrush current

Inrush current is drawn during the startup period beginning with the application of input voltage at the PI compliant with V_{port_PD-2P} requirements as defined in Table 33–28, and ending when C_{Port} has reached a steady state and is charged to 99% of its final value. This period shall be less than $T_{Inrush-2P}$ min per Table 33–17, with the PSE minimum inrush behavior defined in 33.2.8.5. ~~All~~ Type 1, Type 2 and Type 3 PDs shall consume a maximum of Type 1 power for at least $T_{delay-2P}$ min. This allows the PSE to properly complete inrush.
Type 4 PD shall consume a maximum of class 2 power for at least $T_{delay-2P}$ min. This allows the PSE to properly complete inrush.