

Comment

Is it correct to use $I_{Con-2p_unb_MIN}=I_{Con}$ for Type 3 and 4 operating class 0-4 PDs?
 The reason for this question is that it could be per the current spec that the I_{Con-2P_unb} min for class 4 will be greater than Class 5 which may raise confusion and the following analysis meant to explain why it happens for the record and suggest text for clarity.

Analysis:

- a) When Type 3 or 4 connected to class 0-4 PDs working over 2P or 4P we may have the following behaviors:
 - If working over 2-pairs than $I_{Con-2P_unb_min}=I_{Con}=P_{class}/V_{port} = 0.6A$ for class 4 as an example.
 - If working over 4-pairs, the worst case unbalance will cause the current to be only 365mA on the pair with maximum current however per the current spec 0.6A will be the value for this case too ending with situation that class 4 I_{Con-2P_unb} current is greater than class 5.

But due to the fact that there are no unbalance requirements for class 0-4 operating over 4-pairs, we have no choice but to use for 2P and 4P operation with class 0-4 PD the same “ I_{Con-2P_unb} ” min value which is I_{Con} and we need to clarify this in the spec.

The same discussion is apply to I_{LIM-2P} in table 33-11 item 9 which is discussed in separate comment.

Item	Parameter	Symbol	Unit	Min	Max	PSE Type	Additional information
4	Continuous total output current capability in POWER_ON state	I_{Con}	A	$P_{Class} / V_{Port_PSE2P}$		1-2 All	See 33.2.7.4.
4a	Pairset current including unbalance effect						
	Class 0-4	I_{Con-2P_unb}	A	I_{Con} I_{Con}^3	.	3, 4	See 33.2.7.4 and 33.2.7.4.1.
	Class 5			0.550	.	3, 4	
	Class 6			0.682	.	3, 4	
	Class 7			0.777	.	4	
Class 8	0.925			.	4		
5	Output current in POWER_UP state	I_{rush}	A	0.400	See info	All	See 33.2.7.5. Max value defined by Figure 33-13.

Suggested Remedy

1. Change I_{Con} to I_{Con}^3 in Table 33-11 item 4a I_{Con-2P_unb} minimum value.
2. Add note 3 at the end of table 33-11 with the following text:
 “³ Unbalance at Class 4 is not restricted, its I_{Con-2P_unb} value is higher than the value for Class 5.”