1. Update equation 33-4b (PSE PI) with the missing constants from:

$$R_{\text{Pair\_max}} = \left\{ \begin{array}{ll} k1 \times R_{\text{Pair\_min}} + a1 & \text{for class 5} \\ 1.894 \times R_{\text{Pair\_min}} - 0.053 & \text{for class 6} \\ k2 \times R_{\text{Pair\_min}} + a2 & \text{for class 7} \\ 1.760 \times R_{\text{Pair\_min}} - 0.042 & \text{for class 8} \end{array} \right\}_{\Omega}$$

To:

$$R_{Pair\_max} = \begin{cases} 2.037 \text{ x } R_{\text{Pair\_min}} - 0.056 & \text{for class 5} \\ 1.894 \text{ x } R_{Pair\_\text{min}} - 0.053 & \text{for class 6} \\ 1.819 \text{ x } R_{Pair\_\text{min}} - 0.043 & \text{for class 7} \\ 1.760 \text{ x } R_{Pair\_\text{min}} - 0.042 & \text{for class 8} \end{cases}$$

1.1 Remove Editor Note in page 246 line 37

---------- End Of Base Line Text ----------

Notes:

1. This is PSE PI P2P spec.
2. Reviewing this numbers to cover extended power requires no changes due to the fact that we need that the burden will be on the PD for extended power. As a result PD PI requirements will be updated to cover extended power.
3. The above numbers may be changed if PSE Vdiff will be changed from 2mV to 10mV and PD diode models will be changed from PD Vdiff=58mV to PD Vdiff=50mV to keep total system Vdiff=60mV.

2. Update Table 33-11 item 5a TBDs as follows:

Item	Parameter	Symbol	Unit	Min	Max	PSE Type	Additional Information
4a	Pair set current due to E2ERunb within E2ERunb range for Class 5	$I_{Con-2P-unb}$	A	~~TBD~~ 0.536		3	See 33.2.7.4 and 33.2.7.4a
	Pair set current due to E2ERunb within E2ERunb range for Class 6			0.668		3	
	Pair set current due to E2ERunb within E2ERunb range for Class 7			~~TBD~~ 0.778		4	
	Pair set current due to E2ERunb within E2ERunb range for Class 8			~~0.931~~ 0.926		4	

---------- End Of Base Line Text ----------

Notes:

1. The values of Icont-2P_unb shall be kept within the above limits in case a PD is used extended power.
   A comment was sent to add the relevant text. As we agreed, the burden will fall on the PD side in a way that tighter unbalance requirements will be developed to keep the same current.
   A comment was issued to build the infrastructure to do it by modifying Table 33A-1 in D1.2.
2. The value of Icon-2P_unb will not be change as long as total system Vdiff will be kept 60mV max regardless if PSE Vdif is 2mV or 10mV and PD Vdiff is 58mV or 50mV respectively.

3. Update Table, numbers and TBDs in page 331 lines 20-26.

	Non Extended Power Mode		Extended Power Mode	
PSE Class	Rload_min, [Ω]	Rload_max, [Ω]	Rload_min, [Ω]	Rload_max, [Ω]
5	~~TBD~~ 0.739	~~TBD~~ 1.562	TBD	TBD
6	~~0.632~~ 0.635	1.250	TBD	TBD
7	~~TBD~~ 0.577	~~TBD~~ 1.094	TBD	TBD
8	~~0.530~~ 0.533	~~0.975~~ 0.979	TBD	TBD

Table ~~33A-1~~ 33B-1: Rload_max and Rload_min requirements.

Editor Note: To complete TBDs after finalizing PSE Vdiff. Numbers may be changed if PSE vdiff will be changed.

---------- End Of Base Line Text ----------

1. The table number need to be changed to Table 33B-1 per other comment that addresses wrong implementation of darshan_06_0715.pdf in http://www.ieee802.org/3/bt/public/jul15/darshan_06_0715-REV008.docx.]
2. For extended power mode support, the additional two columns will describe Rload when PD side diodes are set to Vdiff that will generate same Icon-2P_unb max as specified in table 33-11 when PD is operated at extended power mode and minimum cable length of 0.1Ω.
3. The TBDs will be addressed only after finalizing PSE Vdiff.
   The above numbers may be changed if PSE Vdiff will be changed from 2mV to 10mV and PD diode models will be changed from PD Vdiff=58mV to PD Vdiff=50mV to keep total system Vdiff=60mV.

4. To update K in equation 33-4a per latest D1.1 changes.

Make the following changes:

1. Update equation 33-4a to reflect class 5 and 7 requirements.

   Change from:

$$K = \min\begin{Bmatrix} 0.1882 \cdot Rchan^{-0.337},\ 0.28 & for\ type\ 3. \\ 0.1777 \cdot Rchan^{-0.329},\ 0.26 & for\ type\ 4. \end{Bmatrix}$$

To:

$$K = \min\begin{Bmatrix} 0.2007 \cdot Rchan^{-0.345},\ 0.306 & for\ Class\ 5. \\ 0.1882 \cdot Rchan^{-0.333},\ 0.283 & for\ Class\ 6. \\ 0.1816 \cdot Rchan^{-0.327},\ 0.270 & for\ Class\ 7 \\ 0.1775 \cdot Rchan^{-0.326},\ 0.260 & for\ Class\ 8 \end{Bmatrix}$$

---------- End Of Base Line Text ----------

Notes:

1. Constants where changed due to changing Ppeak-PD/Pclass-PD ratio to 1.05 instead of 1.11
2. The results will not be affected for extended power due to the fact that we will make sure that the PD will have tighter P2PUNB to keep the same E2EP2PRunb so Icont-2P_unb and as a result Ipeak-2P will be the same as not for extended power case.

5. To update Editor's Notes below Table 33-11 as follows:

To update the following Editor Notes if

Editor's Note (for Table 33-11):

1. To add normative text that specifies extended power class 6 and class 8 $I_{cont\text{-}2P\text{-}unb}$ and $I_{peak\text{-}2P}$ values ~~need to be addressed for Extended power~~ to be the same values as for class 6 and 8. ~~case where P_{Class_PD} is very close to P_{Class}. It will result with higher currents on the pair with minimum resistance but will not change the total 4P cur-rent. For the above parameters in extended power, we will have to add two new rows that will specify maxi-mum current at this case. Total PSE power will not change.~~

2. PSE Vdiff is still under investigation. It may be changed.

3. $I_{cut\text{-}2P}$ min values ~~(K_Icut3 and K_Icut4)~~ are subject to final E2EP2P_Iunb/Runb results after conducting statistical analysis (if required) which will result with lower values. The current values are derived from worst case analysis model.

4. The following case needs to be addressed: If PSE is using active or passive pair to pair current balancing circuitry, K_I_{cut3} or K_I_{cut4} may be lower (down to 0.5) per equation TBD.

~~*5. Information to be added to item 9 for Type 3 and Type 4 that $I_{lim\text{-}2P}$ min value is including E2EP2P_Iunb/ Runb.*~~

6. To address a T_{lim_max} that is not shown in Figure 33-14.

~~*7. $I_{lim\text{-}2P}$ min and $I_{cut\text{-}2p}$ is specified per class to allow for cost effective designs (avoid forcing transformers to support high I_{lim} on a system that supports lower class levels only). This same concept will apply to $I_{cont\text{-}2P}$ and $I_{cont\text{-}2P\text{-}unb}$ per class. Comments will be submitted to address this for $I_{cont\text{-}2P}$ and $I_{cont\text{-}2P\text{-}unb}$.*~~

8. E2EP2P_Iunb is the highest (~30%) on the pairs were we don't sense the current and lower on the pair we sense current (~15%). While specifying the PSE port current capacity per the highest P2P_Iunb is the correct approach (which we already did), it is worth to consider if I_{lim} and I_{cut} need to be calculated per the pairs with highest unbalance or per the pairs with lower unbalance. The reason for this question is: I_{cut} and I_{lim} values are set to much higher values than the actual current measure due to much higher P2P_UNB. As a result the actual I_{lim} protection will be activated ~11.1% above Type 4 maximum power. The solution is: I_{cut}, I_{peak}, I_{lim} will be allowed to be decreased if PSE Rmax and Rmin are increased by a small constant resistance per equation TBD which is actually what happened in the negative pairs. To be discussed in the group.

Updated Remedy for Comment #31.
It addresses also comments #84, 85, 87, 88, 89, 90

Comment

Marked for reference as YD_002_PSEP2P)
In D1.1 we have approved darshan_06_0715.pdf in http://www.ieee802.org/3/bt/public/jul15/darshan_06_0715-REV008.docx.
It was requested specifically to use Annex B (and not Annex C and not Annex A) to the PSE PI material in 33.2.7.4.1 and 33.2.7.4.2 that links to a Normative Annex Named Annex B in the above link.
Currently the editor named the original Annex B as Annex 33A.6 to Annex 33A.10 which is informative Annex and the intent was that this part will be separate NORMATIVE Annex B.
In addition It is not clear that all parts of original Annex B that are now Annex 33A.6 to Annex 33A.10 are related to each other as in original Annex B and not independed parts.
We need to implement the relevant comment from D1.1 and others as approved.
Summary:
PSE PI Material from the above link is Normative Annex B.
The Autoclass material is Annex C.
The following remedy is identical to adopt Annex B in the above approved document while correcting the relevant instances were Annex A, B and C are mentioned.

Suggested Remedy

Make the following changes without editorial licensing to do otherwise:

1. In Annex 33A.6 page 330 line 21: Change title to: Annex 33B [Normative]PSE PI pair-topair resistance/current unbalance.
1.1 In page 330 line 27: Change table Yuval_1 to Table 33B-1.
1.2 In page 330 line 28: Change <> to Annex F.
1.3 In page 330 line 51: Change Figure number from 33A-4 to 33B-1.
1.4 In page 331 line 17: Change Table 33A-1 to Table 33B-1

2. In Annex 33A.7 page 331 line 35: Change title to: 33B.1 direct measurements of Rpse_max and Rpse_min
2.1 in page 331 line 43: Change from 33A.8 and 33A.9 to 33B.2 and 33B.3
2.1 In page 332 line 17: Change Figure number from 33A-5 to 33B-2.

3. in Annex 33A.8 page 332 line 21: Change title to: 33B.2 Effective Resistance Measurement Method by measurement of current unbalance under worst case pair-to-pair load conditions
3.1 in page 332 line 41: Change Figure number from 33A-6 to 33B-3.
3.2 in page 333 line 17: Change from 33A.9 to 33B.3

4. in Annex 33A.9 page 333 line 20: Change title to: 33B.3 Current Unbalance Measurement Method
4.1 in page 333 line 22: change Table 33A-1 TO 33B-1
4.2 in page 333 line 24: change Figure 33A-7 to 33B-4.
4.3 in page 333 line 41: change Figure 33A-7 to 33B-4.

5. in Annex 33A.10 page 334 line 9: Change title to: 33B.4 Channel resistance with less than 0.1 ohm

6: Add Annex F (informative) - Derivation of Rload_max and Rload_min.
Editor Note (to be removed prior to publication): To consider the value of adding informative Annex F to present Rload_max and Rload_min equation derivation and values.

7: in Annex 33B page 335 line 2: Change to Annex C.

8 In page 330 lines 33-37 change the text as follows:
"Figure 33B-1 illustrates the relationship between PSE PI Equation (33-4b) and E2EP2PRunb. **Rload_min and Rload_max as specified in Table 33B-1**."

9 In page 331 l**in**e 44: Replace 33A-4 with 33-4b.