

# 10GBase-T PoE

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# Purpose

- The utilization of better cable DC resistance in 10GBASE-T mode to increase the power efficiency for PoE system

# Overview

- BT Objective: Support operation with 10GBASE-T
- 10GBASE-T requires Cat6 cable at least
  - clause 55.7: 10GBASE-T is designed to operate over ISO/IEC 11801 Class E or Class F 4-pair balanced cabling that meets the additional requirements specified in this subclause.
- Cat6 DCR is better than Cat5e DCR.
- 10GBASE-T mode PoE can provide better DCR and more power for PD.

# System Parameters in Table 33-1

System Type (Lowest type of PSE&PD)	Nominal Highest Current per pair ( $I_{cable}$ , A)	Channel Pair-set maximum DC loop resistance ( $R_{chan}$ , $\Omega$ )	Minimum Cabling Type	Channel Pair-set maximum DC loop resistance ( $R_{chan}$ , $\Omega$ ) at 10GBASE-T mode	Minimum Cabling Type for 10GBASE-T
Type1	0.350	20	twisted-pair cabling per 14.4 and 14.5 (Class D recommended)	6.7(TBD)	Class E (ISO/IEC 11801 )
Type2	0.600	12.5	Class D (ISO/IEC 11801:1995)	6.7(TBD)	Class E (ISO/IEC 11801 )
Type3	0.600	12.5	Class D (ISO/IEC 11801:1995)	6.7(TBD)	Class E (ISO/IEC 11801 )
Type4	TBD	TBD	TBD	6.7(TBD)	Class E (ISO/IEC 11801 )

# $P_{\text{Class\_PD}}$ in Table 33-18

Parameter	Max	Max for 10GBASE-T	PD Type
Input average power, Class 0 and Class 3	13.0	14.54*	1,3
Input average power, Class 1	3.84	3.94*	1,3
Input average power, Class 2	6.49	6.8*	1,3
Input average power, Class 4	25.5	27.48*	2,3
Input average power, Class 5	TBD	TBD	3
Input average power, Class 6	TBD	TBD	3
Input average power, Class 7	TBD	TBD	4
Input average power, Class 8	TBD	TBD	4

\*note: the power number is based on the DCR of Cat6 Cabling in previous page.

Questions?