
802.3 Multidrop Mixing Segment Specifications

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802.3ck - Parameter Naming

802.3ck Return Loss -

- *Common-mode to differential-mode return loss - named RL_{dc} —with s-parameter SDC11/SDC22- cabling LCL*
- *Differential-mode to common-mode return loss - named RL_{cd} —with s-parameter SCD11/SCD22- cabling TCL*

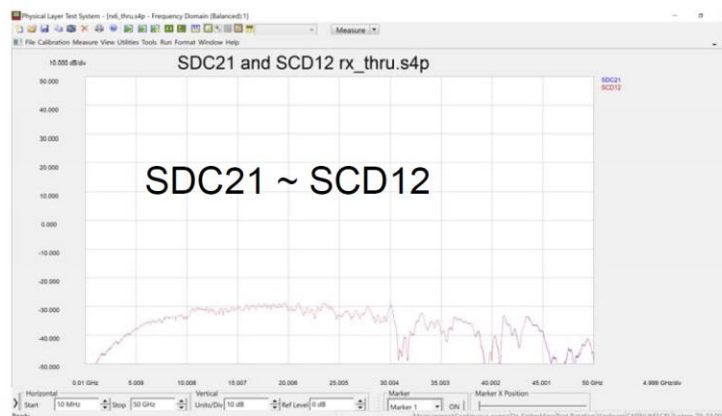
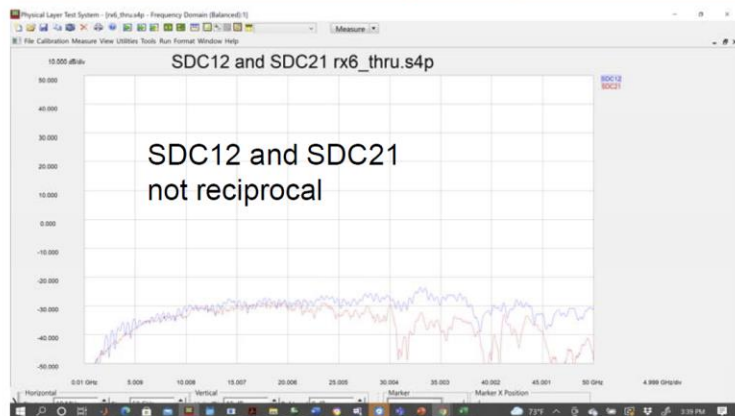
802.3ck Mode conversion -

- *Common-mode to differential-mode insertion loss - named IL_{dc} —with s-parameter SDC12/SDC21- cabling LCTL*
- *Differential-mode to common-mode insertion loss - named IL_{cd} —with s-parameter SCD12/SCD21- cabling TCTL*

802.3ck - Parameter Naming

MTF measurements

https://www.ieee802.org/3/ck/public/tools/cucable/kocsis_3ck_02_0719_MTFosp.zip



Need a minimum of two measurements
SDC12 and SDC21
SCD12 and SCD21
SDC12 and SCD12
SDC21 and SDC21

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802.3ck Task Force

Source: https://grouper.ieee.org/groups/802/3/ck/public/21_09/diminico_3ck_01_0921.pdf slide 4

10 Mb/s SPMD Enhancement TG

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802.3da - 168.6.3

168.6.3 Mode conversion loss

https://iee802.org/3/da/public/062922/diminico_SPMD_02_06292022.pdf

The differential to common mode conversion requirement applies to unshielded link segments and depends on the electromagnetic noise environment. The requirements of Table 168–xx shall be met based on the local environment as described by the electromagnetic classifications given in Table 146–7, E1 or E2.

The requirements of Table 168–xxa shall be met at any MDI attachment without the MDI or other loads attached. The reference impedance is 50 Ω .

The requirements of Table 168–xxa shall be met between or at edge termination attachment points without the MDI or other loads attached. The reference impedance is 100 Ω .

Table 168–xxa—Differential to common mode conversion

	Frequency (MHz)	E ₁	E ₂
Mode Conversion	TBD $\leq f \leq$ TBD	\geq TBD	\geq TBD

*Editor's Note (to be removed prior to Working Group ballot):
Contributions for mode conversion of UTP cabling are needed.*

146.7.1.4 Differential to common mode conversion

The differential to common mode conversion requirement applies to unshielded link segments and depends on the electromagnetic noise environment. The requirements of Table 146–5 shall be met based on the local environment as described by the electromagnetic classifications given in Table 146–7, E₁ or E₂.

Table 146–5—Differential to common mode conversion

	Frequency (MHz)	E ₁	E ₂
TCL	$0.1 \leq f \leq 10$	≥ 50 dB	≥ 50 dB
TCL	$10 < f \leq 20$	$\geq 50 - 20\log_{10}\left(\frac{f}{10}\right)$ dB	$\geq 50 - 20\log_{10}\left(\frac{f}{10}\right)$ dB

Source: IEEE Std 802.3cg-2019