

# Application driven view on Burst & Coupling Attenuation for links

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# Agenda

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Specification principles for EMC

Correlation: Coupling Attenuation and Burst

Coupling attenuation for 100Base-T1L

Respective TCL for 100Base-T1L

# Specification principles for EMC

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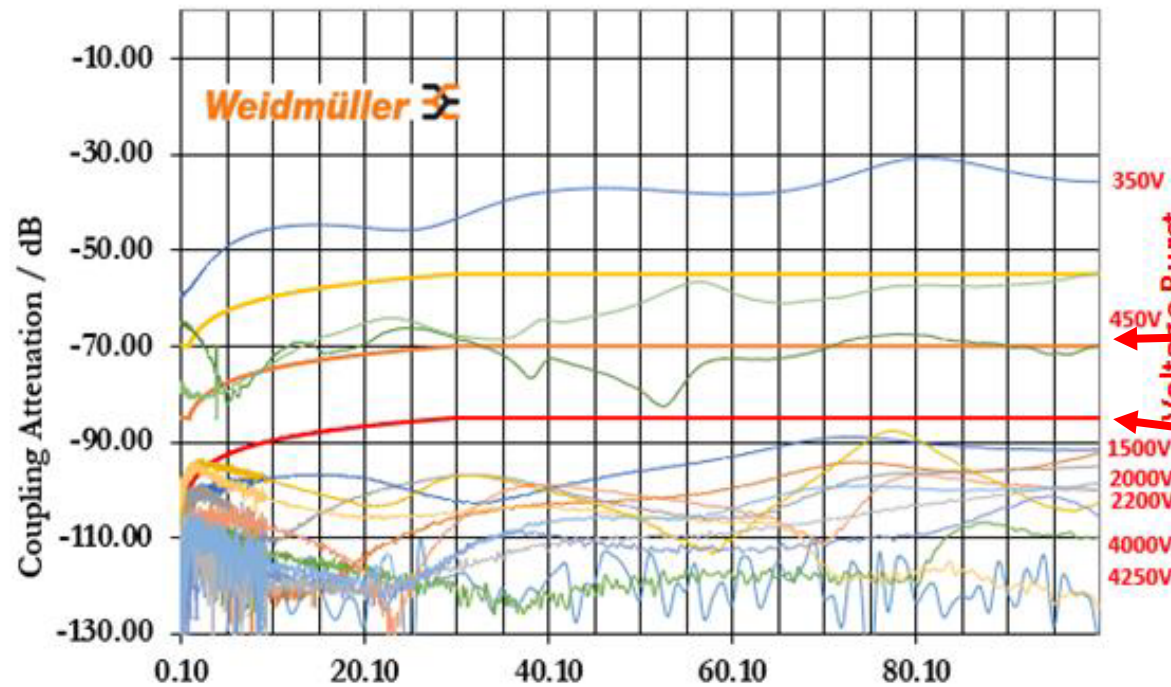
A link specification has to provide two separate specifications for screened and unscreened links.

For screened links from 0,1 MHz to 30 MHz usually Low Frequency Coupling Attenuation (LFCA) and from 30 MHz and above Coupling Attenuation (CA) is specified.

For unscreened links usually TCL is specified.

# Correlation: Coupling Attenuation and Burst

Details on burst: Tillmanns\_3dg\_01\_02072024



Burst test:

E1, E2 (500 V)

E3 (1000 V)

To pass the burst test the respective levels of Coupling Attenuation must be passed.

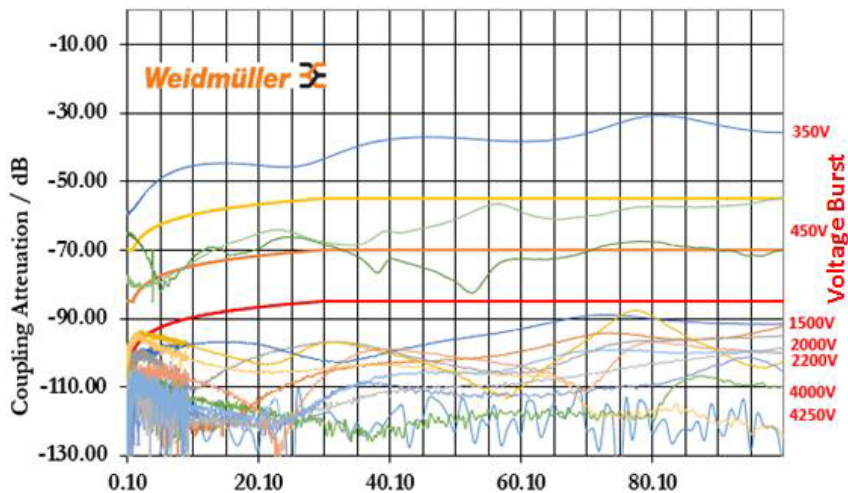
# Coupling attenuation for 100Base-T1L

Orange limit line:

E1, E2:  $70 - 10 \cdot \log(f/30)$ , 85 dB max., 70 dB min.

Red limit line:

E3:  $85 - 10 \cdot \log(f/30)$ , 100 dB max., 85 dB min.



# Respective TCL for 100Base-T1L

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For unscreened links we have to consider TCL:

As Screening Attenuation (AS) = 0 dB  $\rightarrow$  TCL =  
Coupling Attenuation (AC)

Therefore the same limit apply.

Orange limit line:

E1, E2:  $70 - 10 \cdot \log(f/30)$ , 85 dB max., 70 dB min.

Red limit line:

E3:  $85 - 10 \cdot \log(f/30)$ , 100 dB max., 85 dB min.

# Discussion

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