Reduced Twisted Pair Gigabit Ethernet
EMC & Noise Ad Hoc Face-to-Face Meeting

Geneva, Switzerland

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Discussion Topics

- Differential Parameters for Link Segment (Channel Ad Hoc)
  - IL, RL, Alien XTALK

- Can we have a unified Test Setup for Balance Measurements?
  - DUT 5cm over a ground plane (commonly used by automotive OEMs)
    - May provide a consistent CM impedance among different measurements & setups
  - Components' Testing (cables, connectors, magnetics, etc.)
    - 3-port vs. 4-port VNA measurements
    - Cable & Connector manufacturers will hold discussions among themselves and build consensus on test setup & jigs for mixed mode parameter measurements (as a suggestion Stefan Buntz will provide some information)
  - System EMC Testing as proposed previously
    - DPI for device level testing
    - Stripline for emissions
    - BCI for immunity

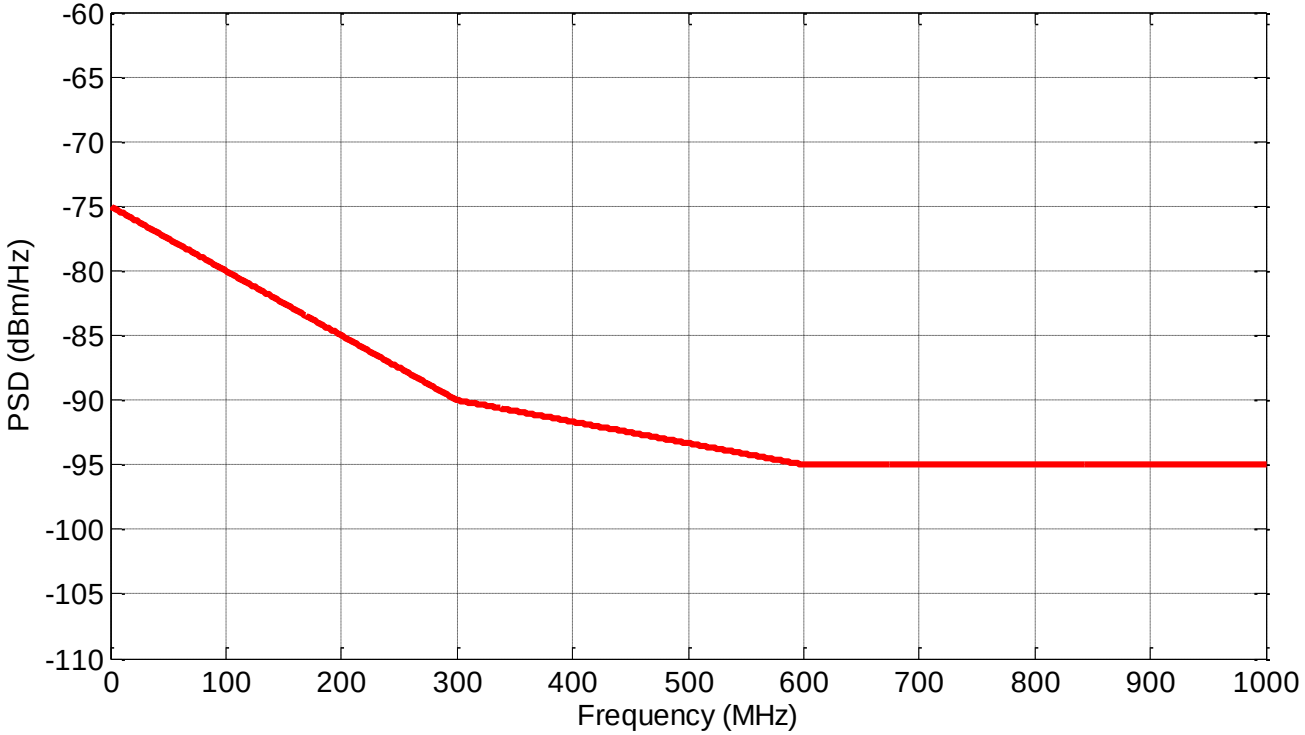
Discussion Topics (cntd.)

- Impulse Noise
  - One time switching noise (light, door, etc.), short time noise (seat motor, wiper, etc), ignition noise (couples through thru the battery and is main source of the impulse noise)
  - Coupling mechanism (CM to DM)
  - Amplitude, pulse duration, repetition rate
  - Request a translation of the provided document (German) to English

- Broadband Noise Immunity
  - There is no specification for this type of impairment
  - How can we obtain this data??
    - Can we attain this data from the current automotive systems (CAN, FlexRay, etc.)
    - Can we use BCI test setup for Broadband noise analysis?
    - Any contributions (automotive OEMs, Tier-1s)?

- Propose to adopt the limit lines for initial analysis
  - Emissions → TX PSD (proposed on 6/26/2013)
  - Immunity → Mode Conversion limit line (proposed on 6/26/2013)

Proposed TX PSD

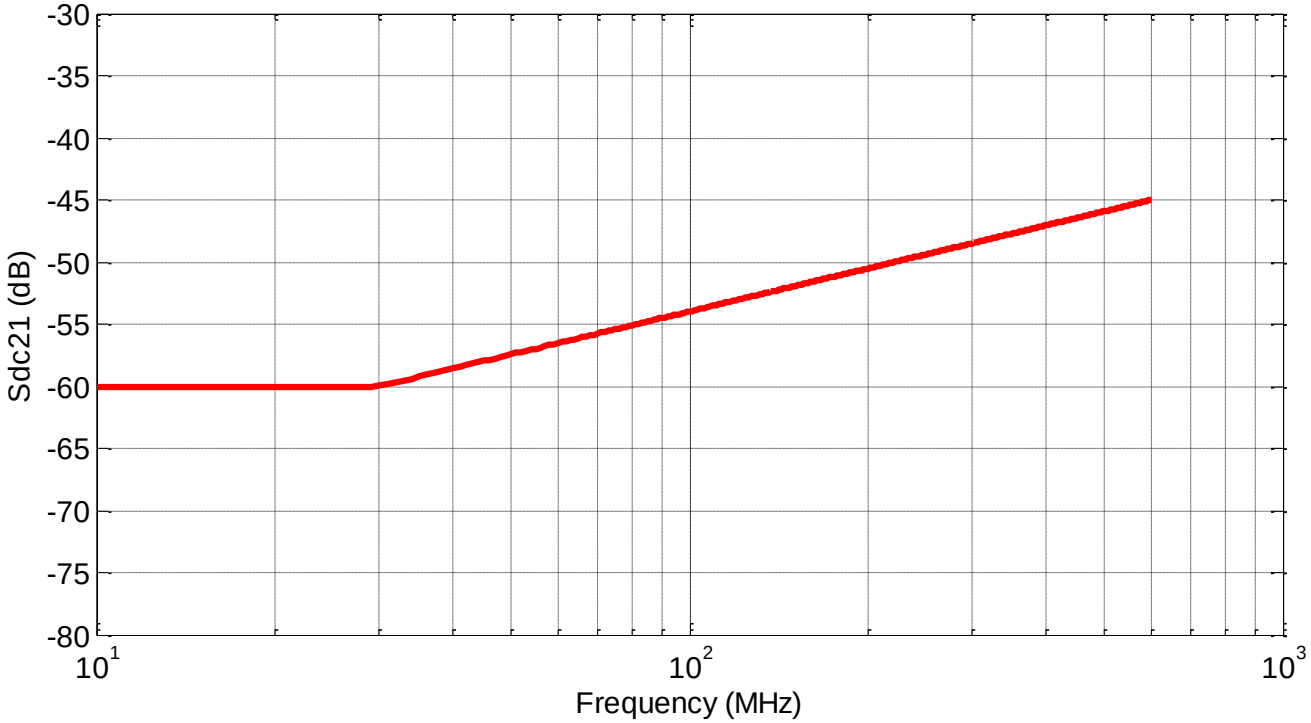


$[-f/20 - 75]_{dBm/Hz}$ $0 < f < 300MHz$

$[-f/60 - 85]_{dBm/Hz}$ $300MHz < f < 600MHz$

$-95_{dBm/Hz}$ $600MHz < f < 1000MHz$

Proposed Mode Conversion Limit Line



-60_{dB} 10MHz < f < 30MHz

$[\,5 \log(f) - 77\,]_{dB}$ 30MHz < f < 600MHz