

Consideration for Shield Performance in the Frequency Range of 10 kHz to 100 MHz

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Why is shield performance important at 10 kHz to 100 MHz?

- In developing/designing links for the 802.3dm technology, the shield can be used for power return.
- Knowing the performance in the shield in this frequency range aids the user to optimize for the specific application for the specific power budget.
- Knowing the performance in this frequency range can give better prediction of the Switch Mode Power Supply (SMPS) noise as it relates to meeting radiated emission (RE) performance.
- Knowing the performance in this frequency range can give better prediction of ingress of noise as it relates to coupling of noisy aggressors in close proximity based on the overall harness, immunity to radiated disturbances.
- Gives insight into performance in this frequency range for present and future applications of this technology; e.g. robotics, commercial vehicles, HD vehicles, aerospace, industrial, etc.

Consider measuring surface transfer impedance (STI) from 10 kHz to 100 MHz for the PoC applications

- Measuring the STI is a technique used to characterize this performance.
- STI is a well established test methodology and easy to make measurements and understand.
- The information gathered from the STI would be applied in instances of link location within the localized architecture.
- Measurement methodology, specific reference to IEC document.
- STI requires an understanding of the implementations of the test sample length and configurations.
- Understanding how to combine the STI results for multiple link segments within the intended application is another value add to this measurment.

Conclusions

- Do not make this normative, only informative to aid the user of the standard in implementing this technology.
- If this is of interest, Rohit and I can bring in additional information on STI and its uses.
- STI in this frequency range has value in characterizing the shield for power delivery, SMPS RE, closely coupled RI/CI within a harness bundle.
- Addresses an often-overlooked parameter that provides insight into other uses of the shield such as power delivery.
- Allows for understanding of multiple segments that comprise a single link.

Thank You