LVDS Application Workshop Welcome

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Workshop Motivation

- Recently some problems have been observed regarding the reliable operation of LVDS based links on ESA missions.
- During ESA project reviews questions have been raise regarding the reliable implementation and verification of LVDS interfaces and connections.
- Non compliances to LVDS standard TIA/EIA-644-A have been reported.
- Concerns have been raised on their robustness in case of possible failure cases in the system.
- A new generation of LVDS devices and interfaces will be developed in ECI-3 and for the future European ASIC technologies.

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Workshop Objectives

- The LVDS Application Workshop aims to bring together all stakeholders in the satellite supply chain concerned with LVDS
- To discuss experiences, lessons learned and to exchange best practices and ideas for the implementation and testing of LVDS links.
- To capturing the user needs and requirements for the next generation of LVDS driver/receiver/repeater components and ASIC / FPGA interfaces.
- This shall cover the LVDS functional and electrical characteristics and the type of components needed in the future.
- The requirements identified during this the workshop may be used as input for ESA components technology development programs.

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Workshop Program - AM

9:00 **Welcome**

9:10 **Component suppliers LVDS portfolio and roadmaps:**

- Aeroflex - LVDS Product Family *(Jennifer Larsen, Aeroflex Colorado Springs)*
- Texas Instruments – LVDS Space Products *(Yannis Willgers, TI)*
- ST LVDS for Aerospace *(Thibault Brunet, ST)*
- 3D Plus – LVDS Product family *(Pierre Xiao WANG, 3D Plus)*
- DARE180 LVDS Cells: Status & Future Developments *(Thys Geert, IMEC)*
- Atmel – Wind-Up Report *(Bernard Bancelin, Atmel)*

10:45 **Coffee break**

11:00 **ESA project experiences:**

- LVDS - GAIA experiences (Sam Verstan, ESA)
- ESA SpW-10X LVDS Signalling Discrepancies Experienced in BepiColombo Project (J. Noyes, ESA)

11:50 **LVDS investigations performed at ESA:**

- Test of LVDS components used inside an OBC at ESA *(Giorgio Magistrati, ESA)*
- Test on SpW Router and Aeroflex Drivers/Receivers for BepiColombo *(Giorgio Magistrati, ESA)*
- ESA's Requirements for future LVDS *(Jørgen Ilstad, ESA)*
- Discussion

13:00 **Lunch break**

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Workshop Program PM

13:00 Lunch break

14:00 LVDS Testing:

- LVDS testing, EMC & ESD, best practice *(Steve Parkes, UoD)*

14:30 Equipment Supplier's View

- Problem areas and lessons learned when designing with LVDS *(Pasquale Lombardi, Syderal)*
- European LVDS Application Workshop -TAS-I contribution *(Gianluca Aranci, TAS-I)*
- RUAG Space experience with LVDS interfaces *(Hans Corin, RUAG)*

15:15 System Integrator's View

- The Use of LVDS on Astrium Satellites *(Rajan Bedi, Astrium Ltd)*
- LVDS fields of application at TAS, difficulties encountered and expectations for the future *(Jean-Marie Garigue, TAS-F)*

16:00 Coffee break

16:15 Discussion & Synthesis

17:00 End of meeting

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