

## SpaceWire Electrical Testing

The use of SpaceWire technology was initially dedicated to interface instruments to the On-Board Data handling system on board of satellite. Nowadays, this use has pervaded the Data Handling Sub-System (DHS) and its safety-critical units as On Board Computer (OBC) and Solid State Mass Memory (SSMM). Considering the SpaceWire technology progress at LVDS level their very high bandwidth capability (up to 200 MHz), higher bit rate (up to 400 Mbps) are achievable. Questions have been raised during ESA project reviews regarding the SpW LVDS reliable implementation and their test validation. The overall signalling and timing robustness at DHS is also a matter of concern. The SpW Standard does not call for specific test procedures. Therefore, a specific board dedicated to SpW electrical tests and based on 4 SpW interfaces has been designed. The board has been equipped with SpW LVDS from different manufacturers to perform classical electrical tests such as eye pattern, BER, EMC tests. The tests consider SpW link with rates ranging from 2 Mbps to 200 Mbps.

This paper aims to present the test procedures related to the eye pattern, BER, EMC performed tests. It also aims to present experiences, lessons learned and to exchange best practices and ideas for the implementation and the electrical testing of SpW links.