



# Ethernet PHY Characterisation

Farid Guettache

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European Space Agency

# CONTRACT DETAILS



**Program:** TRP

**Budget:** 200 KEUR

**Planned Duration:** 12 months

**Actual Duration:** 24 months

**T.O.:** Jean-Francois Dufour (TEC-EDD), Farid Guettache(TEC-EDD)

**Technical Support:** Richard Jansen (TEC-EDM), Christian Poivey(TEC-QEC)

## **SCOPE OF THE WORK:**

The purpose of the activity is to perform an up-screening of commercial Ethernet transceivers. If the operation is successfully concluded a batch (lot) of screened components will be made available to the European Space Industry or stored in appropriate environment and made available when requested. In order to select the parts to be tested a trade-off has been performed, and consequently three types of transceivers coming from different companies (Marvell Vitesse and Lantig) have been chosen to undergo the test campaign.



# Ethernet PHY Characterisation



Contractor(s): Airbus DS Bremen (GER) Sub-Contractors : University of Jyväskylä (FIN)	TRP:WP14-15 TEC-E	ESA Budget: 200 k€
	Contract: 4000112932/14/NL/LF	
YoC: 2014	TO: F.Guettache (TEC-EDD)	



**Background and justification:** The introduction of an Ethernet-based network in spacecraft systems will require the availability of an appropriate Ethernet PHY. This transceiver shall be able to withstand the harsh environmental constraints in terms of radiation, vibration, shock, vacuum and other to reach the required reliability. Developing a component that meets these stringent requirements is a long and very expensive process, furthermore its market is very narrow. The use of COTS components became an attractive solution but part screening is inevitable.



**Objective(s)** Select three different COTS transceiver coming from different manufacturers to undergo characterization: Marvel (88E1111), Lantiq (XWAY PHY11GPEF 7072) and Vitesse (VSC8501). Perform environmental and radiation tests (TID, SEE) to achieve a well-characterized Ethernet transceiver wafer lot and to assess the suitability for use in space systems



**Achievements and status:**

Full environmental and radiations tests have been performed for two device Vitesse (VSC8501) and Marvell (88E1111). The results are conclusive.

**Benefits:** These device can be candidates to be selected and used in projects using TTE like Ariane 6, or any on-board ethernet link, but mitigation is required

