RESEARCH ON ADVANCED INTEGRATION BETWEEN THE TERADYNE TSA N129 TEST STATION AND THE VECTOR CANCase XL DEVICE

Goal of the project

The goal of this project was to implement a functional technical approach related to an integration between the Vector CAN Case XL (CCXL) module and the Teradyne In Circuit Tester (ICT). The proposed application is the achievement of a collaboration between two industrial partners: Continental Automotive Romania (Timişoara Plant) and Alfa Test S.R.L. The need for such an integration has originated in the context of permanent focus on innovative production solutions.

Short description of the project

The capabilities offered by this solution include: communication protocol administration, automated formatting of CAN messages, CAN segmentation, selection information embedded in exchanged frames or the combination of ICT based measurements interposed between CAN dialogs.

Implementation period

01.04.2018 - 31.03.2019

Main activities

- Activity 1: A study on the communication possibilities between the Teradyne In Circuit Tester equipment and external hardware tools, using dedicated DLL files.
- Activity 2: Preliminary communication implementations between the Teradyne In Circuit Tester equipment and external hardware tools, using dedicated DLL files.
- Activity 3: Testing the communication library and extending the available commands set. The results should be a 90% minimal success rate for transferring the CAN frames between the Vector tools and the ICT software.

- The Teradyne Test Station Multi Site (1)
- Two CCXL network interfaces have been placed inside the back chassis; Test Fixture (2);
- DUTs (3);
- ICT monitors (4).

Financed through/by

S.C. Alfa Test S.R.L., Timişoara

Results

- over 130 CAN telegrams/responses and can be used for testing other products;
- average response time of 0.56s/CAN command (TS send cmd, TS receive rsp);
- Automated repetition in case of FAIL responses (3 times);
- First Pass Yield (FPY) = 98%, 51 consecutive runs, average test time is 97 s, over 320 CAN command/response exchanges for each test, experimental context;
- approximately 25000 DUTs/month tested with this solution;
- best FPY average over 2 months 96%, worst case FPY average over 2 months 79%. These results are a combined result, with pure ICT test;
- average test time/DUT is 107s.

Applicability and transferability of the results

The solution is running in production, it includes over 100 CAN telegrams/responses and can be used for testing other products. An average response time for a single CAN telegram, from the moment it is issued by the Teradyne Test Station until the user receives the result on the Test Station interface is approximately 0.56 s. A 2.22 s execution time has been obtained for a frequency measurement test which includes 3 type of CAN telegrams.

The proposed application has been developed in the context of creating innovative test solutions which correspond to the requirements of one of the most important automotive companies worldwide.

Research team

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