

EXTENDING THE FLYING PROBE MEASUREMENT CAPABILITIES BY EXTERNAL LCR METER INTEGRATION

Goal of the project

The goal of this project was to implement a flexible solution to integrate, at software and hardware, level the Takaya Flying Probe (FP) type equipment and the LCR meter. By this solution, we aimed at extending the measurement range and improving the accuracy of the FP, in the process of evaluating circuit-mounted inductive and capacitive components.

Short description of the project

The goal of this application is to avoid the apparition of FP erroneous measurement results, for circuit-mounted L and C components, by integration of an LCR meter with the FP. This application was implemented with the help of a partner company which provided the required equipment: the Takaya APT 1400F FP and the BK Precision 891 LCR meter.

Implementation period

01.04.2019–31.12.2019

Main activities

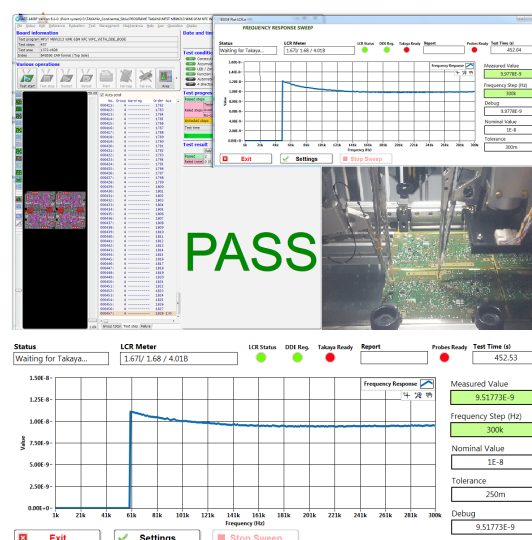
- A study on the communication possibilities between the Takaya APT, LCR meter and external applications using Dynamic Data Exchange (DDE) technology;
- Automatic determination of the best conditions for measuring L-C components, by automatic analysis of the frequency response;
- Development of the integrated software for repetitive measurements;
- Testing experimental models in the industrial area to evaluate the repeatability and measurement accuracy of the proposed solution.

Results

- The integration of the LCR meter device can be performed transparently, without complex user intervention;
- A collection of VI functions, based on DDE, that provide communication between APT and an external device;
- Software for the automatic determination of the best measurement conditions by analyzing the response in the frequency range 1 kHz – 300 kHz;
- Software for automatic measurement of inductive and capacitive parameters;
- Part of the experimental results have been published in an ISI indexed Journal: R. Ionel, S. Mischie, D. Belega, L. Mătiu-lovan, C. Dughir, I&M Applications for Educational Purposes, IEEE Instrumentation & Measurement Magazine, April, 2020.

Applicability and transferability of the results

With the redevelopment of the urban section of the watercourse, it is possible to exploit this non-polluting energy resource in order to satisfy a part of the public consumption. For the moment, the technical part of the study was disseminated through a scientific paper published in the specialized journal Hidraulica Bucharest (ISSN 1453–7303).



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