Newsletter

Work and achievements in 2020

Work package 2 dealing with digital calibration certificates (DCC)

The basic concept of a universal and flexible structure for digital calibration certificates (DCCs) has been developed and established.

An XML schema has been developed based on the requirements of ISO 17024 combined with individual needs from different industrial sectors. This schema can be accessed via a GitLab repository (https://www.ptb.de/dcc/v2.4.0/)

Work package 3 dealing with online validation system(s)

The SmartCom project has developed two novel modules for the validation of SI-based data formats and digital calibration certificates. These SmartCom Expert Extension have been integrated into the TraCIM online validation system (a service run at PTB as an outcome of a previous EMRP project NEW06).- By uploading digital calibration certificates to the TraCIM service, the partners, collaborators and stakeholders now have the possibility to validate their XML data and to receive a test report. Further Information on the online validation system can be found at https://smartcom-tracim.ptb.de/tracim-server-2.0/.

Suggestions for the realization of digital calibration certificates (DCCs) published

A document specifying the design principles for DCCs "Document describing a universal and flexible structure for digital calibration certificates (DCC)" has been published. This document summaries the fundamental DCC layout which is structured in four layers: (i) the administrative layer representing regulated (administrative) data, (ii) the results layer containing a regulated area, in line with the D-SI format and an unregulated area for e.g. individual calibration information, (iii) a layer for individual information such as comments, graphs or any individual data formats, and (iv) an optional attachment layer for human readable documents.

Deliverable D3, published at https://doi.org/10.5281/zenodo.3696567

A guide has been developed, specifying the rules for the secure use of DCC. while covering legal aspects of metrology. It outlines the European state-of-the-art calibration infrastructure combined with international challenges based on the procedures of different European countries. Taking into account potential future infrastructure requirements and cryptographic aspects, a set of minimum requirements for the secure transfer of digital calibration certificates was created. Amongst others, the preservation of readability, integrity and authenticity as well as a (data) security and the possibility for withdrawal and modification have been taken into account.

Deliverable D4, published at https://doi.org/10.5281/zenodo.3664211

Guides on how to validate DCCs and the metadata-format used for representing the calibration data

Validation of the usefulness of measurement data of all kinds and its ability to be interpreted correctly by different software is an emerging need for new technologies in metrology that rely on and foster extensive machine-to-machine communication. For the validation of the D-SI data format and the DCC structure SmartCom has integrated two novel validation modules into an online validation system (TraCIM). Respective good practice guides for the usage of this validation system have recently been published. These guidelines cover the test for communication interfaces, conformity tests and the integration into the TraCIM.

Deliverable D5, published at https://doi.org/10.5281/zenodo.3816696

Expanding the accessibility to the guidelines for the D-SI data format

The D-SI brochure, the guide for the use of the metadata format for the digital transfer of metrological data, has been translated into Chinese, which is publicly available at https://doi.org/10.5281/zenodo.4003413. This is the first publication for the translation of the D-SI brochure.

New project coordinator

Due to the fact that we were able to welcome a new little earthling, our team member Dr. Wiebke Heeren, who some may already know, has taken over the coordination of the Smartcom project from Dr. Shanna Schönhals, for the remaining months of the project.

Work planned for 2021

- Elaborate use cases to demonstrate security concepts for the transmission of metrological data.
- Deploying demonstrators in a close cooperation with our stakeholders and our industrial partners using the D-SI and DCC data formats of SmartCom
- Further focusing dissemination activities towards standardisation bodies and publication of results