Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

INTERNATIONAL COOPERATION

# SEE QI project 7:
## Capacity building for the implementation of inter-laboratory comparisons (ILC) and proficiency tests (PT)

Regional Consultancy Fund for Quality Infrastructure (QI) in South East Europe (SEE)

**Main result:** **Supporting the applying NMIs in gaining knowledge on the ISO 17043:2010 standard requirements and enabling them to develop competence for the complementary operation of ILC/PT schemes at national and regional level.**

**Duration:** **April 2020 – November 2021**

$$E_n = \frac{V_{\text{Lab}} - V_{\text{Ref}}}{\sqrt{U_{\text{Lab}}^2 + U_{\text{Ref}}^2}}$$

**Coordination**:
Mr Stilian Habibi, Directorate for Metrology (DPM), Albania

**External experts and facilitators:**
Dr. Olaf Schnelle-Werner, Metrology expert, Germany
Stefan Wallerath (PTB), Moderation



german cooperation
DEUTSCHE ZUSAMMENARBEIT

SEE South East Europe Regional Consultancy Fund Quality Infrastructure (QI)

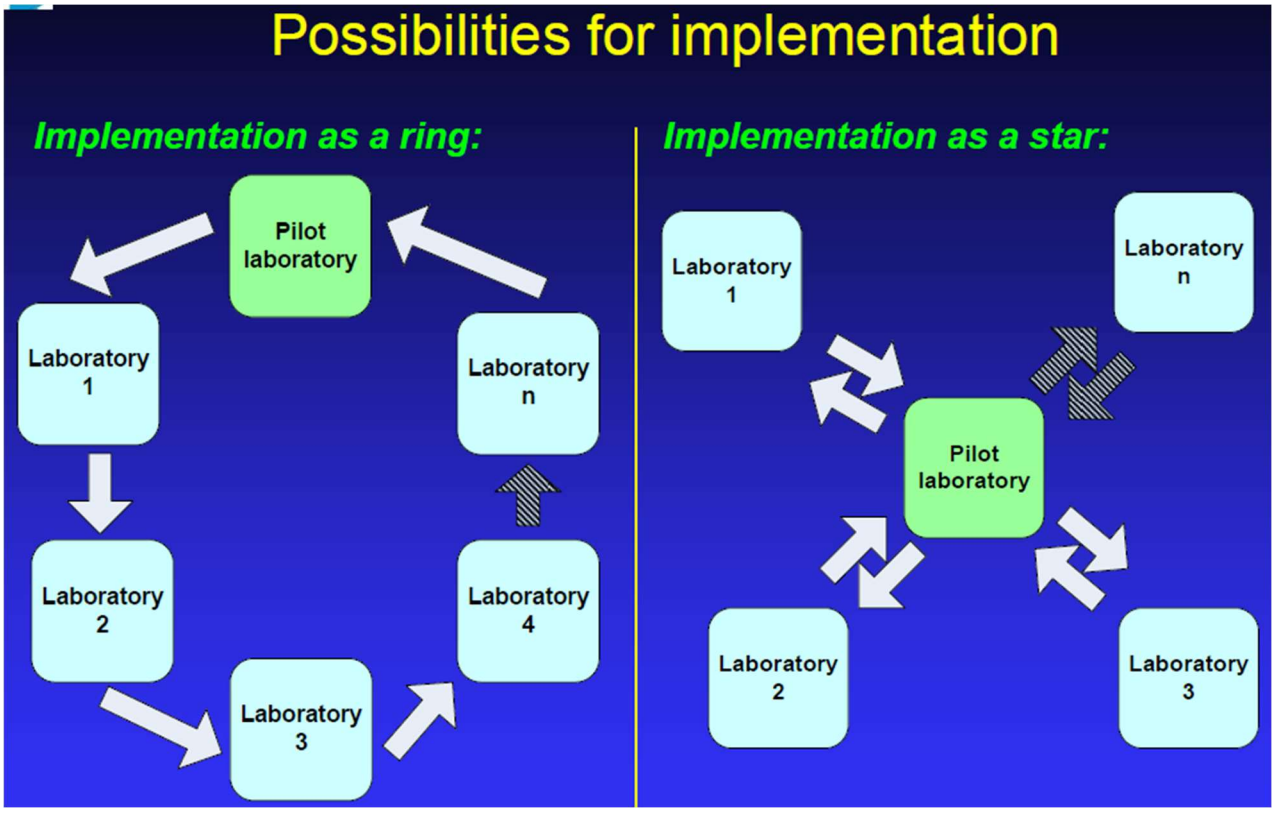
## Background

The importance of participating in PT and/or ILCs is stressed strongly in the policies of National Accreditation Bodies (ABs). ABs consider a laboratory's participation in PTs, where available, and/or Interlaboratory Comparison, as necessary in order to demonstrate competence, in each product sector where accreditation has been granted or is pending and guarantee the quality of results.

Furthermore, according to document EA-4/21 (2018) and ILAC G 27 (2019), if inspection bodies perform measurements, they should comply with the relevant requirements of ISO/IEC 17025 for these activities as traceability, validation of methods and proficiency testing.

Correct measurement and their international recognition are essential for a trustworthy Quality Infrastructure, which is required to enable trade and free movement of goods. Internally recognized calibration certificates are the basis for the recognition of any conformity assessment certificate, required for trade.

Addressing the implementation of ILCs/PTs regionally, will assure complementarity and avoid duplication. It will help the countries to share their experiences and knowledge in the area, allow better coordination to complement each other as PT providers, based on countries' needs and complimentary in the regional perspective.

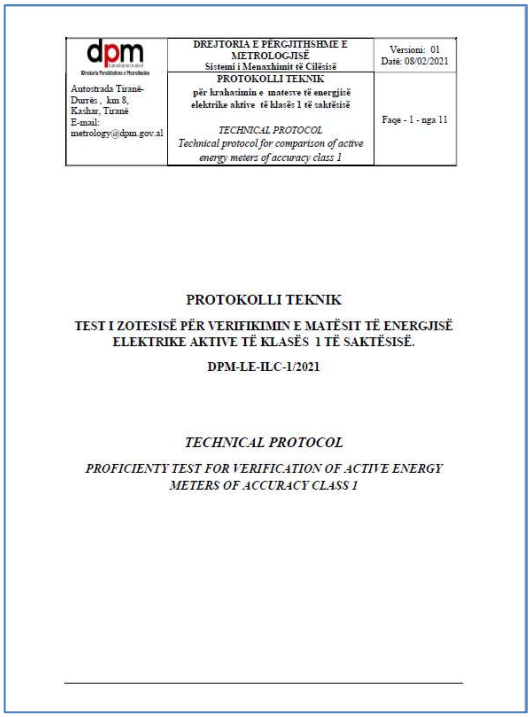


## Project implementation

The project was structured as follows:

- Training/Workshop on organization of ILC/PTs consisting of: introduction of ISO 17043:2010, design and operation of PT schemes, statistical methods, reporting, and interpretation. tools for basic statistical design and data analysis.
- Setup of a complementary plan for the implementation of ILCs/PTs at national and regional (if customs requirements permit) level
- Coaching of the national implementation of ILCs (Review of QM system, ILC/PT protocol, evaluation of the results, drafting of report)
- Follow-up workshop on lessons learned in the implementation of the ILCs/PTs

Due to the developments related to the COVID-19 pandemic in 2020, the planned kick-off workshop for the participating NMIs had to be postponed several times. Finally, it was decided to implement the kick-off workshop virtually in November 2021. This enabled the participation of a wider audience, so that the kick-off workshop was conjointly organized between PTB and EURAMET capacity development unit. This wider background of attendees from 10 EURAMET countries beyond the WB6 region brought in additional perspectives and experiences with the subject and stimulated the discussions during this 2-day virtual kick-off workshop.



dpm

DREJTORIA E PËRGJITHSHME E METROLOGJISË
Sistemi i Menaxhimit të Cilësisë

Versioni: 01
Datë: 08/02/2021

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PROTOKOLLI TEKNIK
për krahasimin e matesve të energjisë elektrike aktive të klasës 1 të saktësisë

*TECHNICAL PROTOCOL*
*Technical protocol for comparison of active energy meters of accuracy class 1*

Faqe - 1 - nga 11

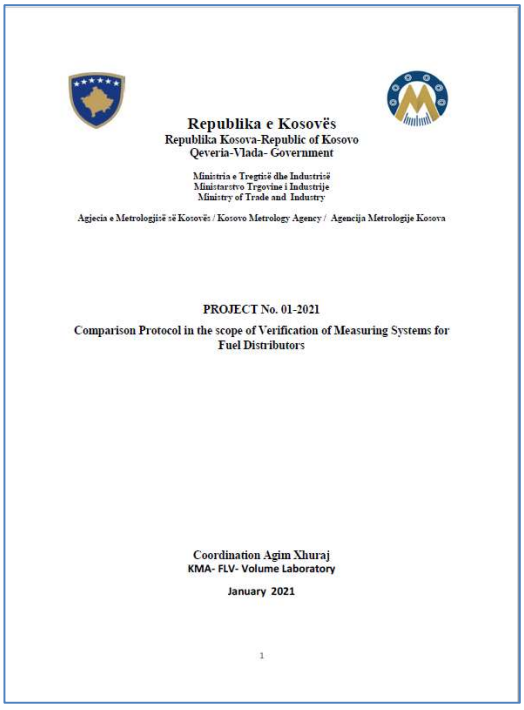
**PROTOKOLLI TEKNIK**

**TEST I ZOTESISË PËR VERIFIKIMIN E MATËSIT TË ENERGJISË ELEKTRIKE AKTIVE TË KLASËS 1 TË SAKTËSISË.**

**DPM-LE-ILC-1/2021**

***TECHNICAL PROTOCOL***

***PROFICIENTY TEST FOR VERIFICATION OF ACTIVE ENERGY METERS OF ACCURACY CLASS 1***



**Republika e Kosovës**
Republika Kosova-Republic of Kosovo
Qeveria-Vlada- Government

Ministria e Tregtisë dhe Industrisë
Ministarstvo Trgovine i Industrije
Ministry of Trade and Industry

Agjencia e Metrologjisë së Kosovës / Kosovo Metrology Agency / Agencija Metrologije Kosova

**PROJECT No. 01-2021**

**Comparison Protocol in the scope of Verification of Measuring Systems for Fuel Distributors**

**Coordination Agim Xhuraj**
**KMA- FLV- Volume Laboratory**

**January 2021**

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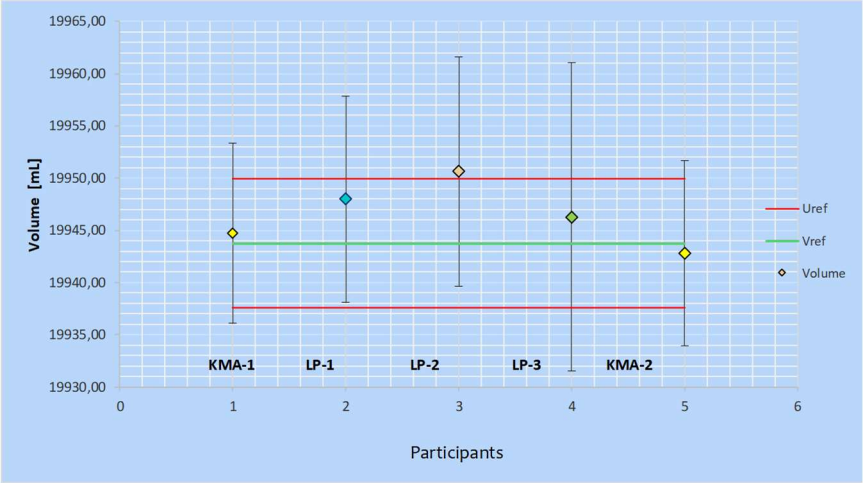
*Technical Protocols of the NMIs conducted by DPA (Albania) and KMA (Kosovo)*

On the third workshop day, only participants from WB6 NMIs assessed the needs and opportunities in the region and planned the further steps of ILCs to be implemented by the NMIs of the region. The NMIs of Albania (verification of energy meters) and Kosovo (verification of measuring systems for fuel dispensers) decided to implement an ILC for inspection bodies accredited to ISO 17020 operating in the area of legal metrology.




*Presenting results and uncertainties by ILC participants and pilot*

The two ILCs were implemented in Q1-Q2/2021 and for both institutions it was the first time ever planning, preparing, implementing and evaluating the data of an ILC independently. The process was coached by the international PTB metrology expert, who reviewed the required documents (draft protocol, statistical evaluation, draft reports) and was available for questions and advice.

During an evaluation workshop on 22.11.2021 the metrologists from DPM and KMA presented their approaches and results to their colleagues and the international PTB metrology expert and discussed the challenges they had encountered.

Following **challenges** were observed by the two pilots during the implementation of the ILCs:

- Availability of resources: transfer standard, technical protocol, etc.
- Lack of experience as PT/ILC organiser and as pilot laboratory
- One participating lab declared Measurement Uncertainty 10 times more than others, although they were using same type & accuracy reference standard and test bench
- Very limited number of calibration laboratories in the country
- Inability to perform measurements according to the final protocol (time table of the measurements) due to the pandemic situation
- In the case of KMA the whole process is designed and prepared only by one staff member of the pilot laboratory in absence of the quality manager
- It was the first time preparing PT / ILC protocols, lack of experience in this regard

- Preparing protocols and reports in English was also a challenge.
- Challenge to find the location for measurements at fuel dispensers (without hindering the economic entity)

Following **lessons learned** were identified in conclusion of this very first experience in the implementation of ILCs as a pilot laboratory:

- A very good learning experience and achievement not only for the pilot laboratory, but for the whole institution
- Willingness to repeat it, also in other measurement areas depending on the needs
- Need to be prepared in advance, i.e, having ready technical protocols for particular measurement areas
- Solving in advance the issues concerning transfer standards – in this PT, it was a relatively new instrument, with little history
- This was also a learning process as pilot laboratory and PT organiser with respect to processing PT results by using the internationally accepted methods
- The project was a lesson and something new for the pilot laboratory to serve as the organizer of the PT and the processing of the results, of course this was achieved with the help of project experts.

## Conclusion

Despite the fact that only two out of four NMIs from the WB6 region without prior experience in piloting an ILC, committed implementing one, the project can be considered being successful in its scope of application. The two concerned NMIs have acquired the knowledge to implement ILCs in line with the requirements of ISO 17043:2010 and are able to transfer and apply this knowledge to the implementation of future ILCs in other measurement areas. DPM is planning to integrate ISO 17043 into the institutions integrated Quality Management System and to draft technical protocols for other measurement areas required in the future. As a first step, a bilateral ILC in the area of pressure measurement is planned with DPM as pilot and KMA as participating laboratory that requires successful ILC participation for its future accreditation.

A closer collaboration with the National Accreditation Bodies is suggested for the future, so that the offered ILCs match with the priority needs of accredited laboratories.