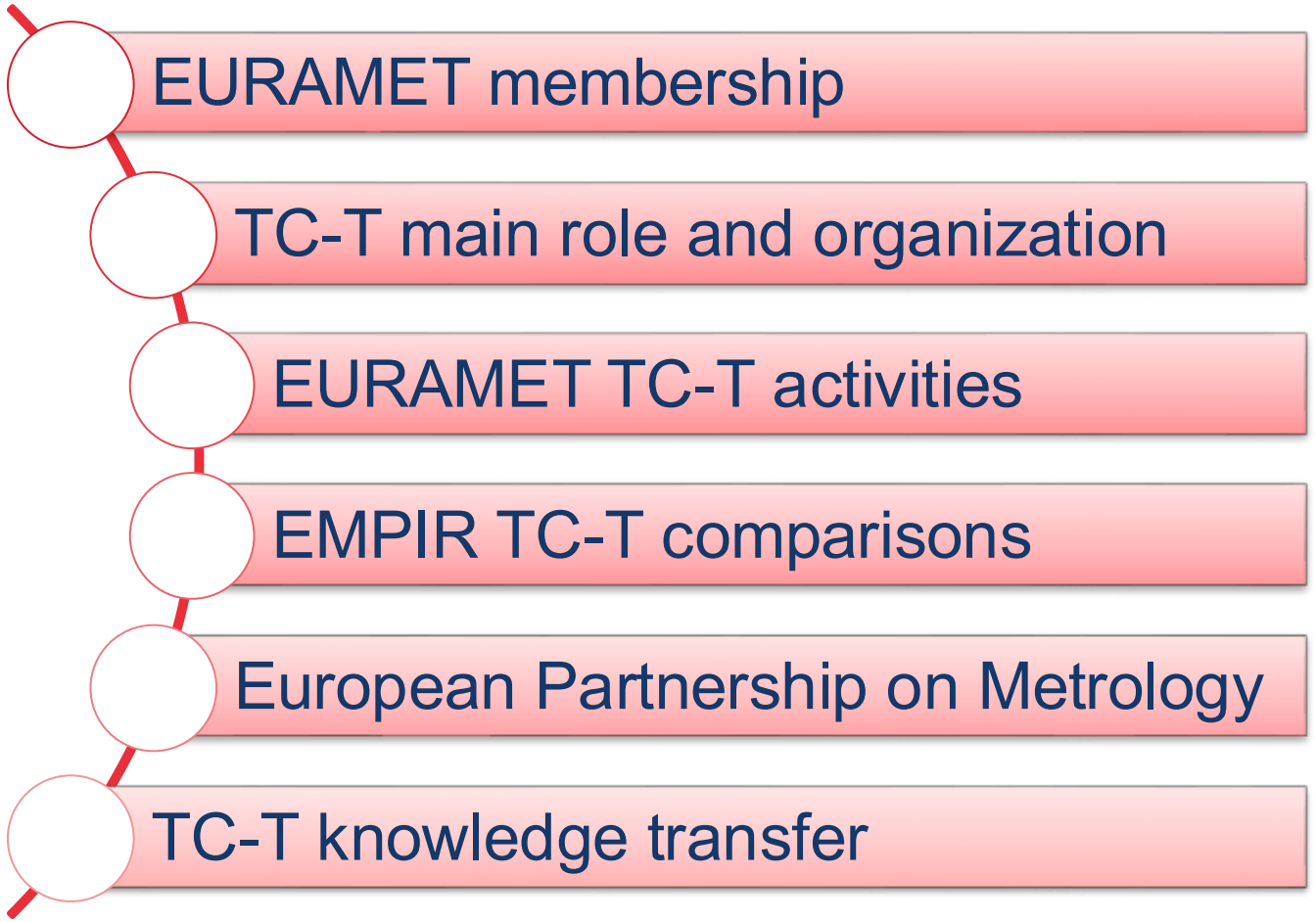
EURAMET TC-T Report

Mohamed SADLI
EURAMET TC-T Chair
22 May 2026

Outline

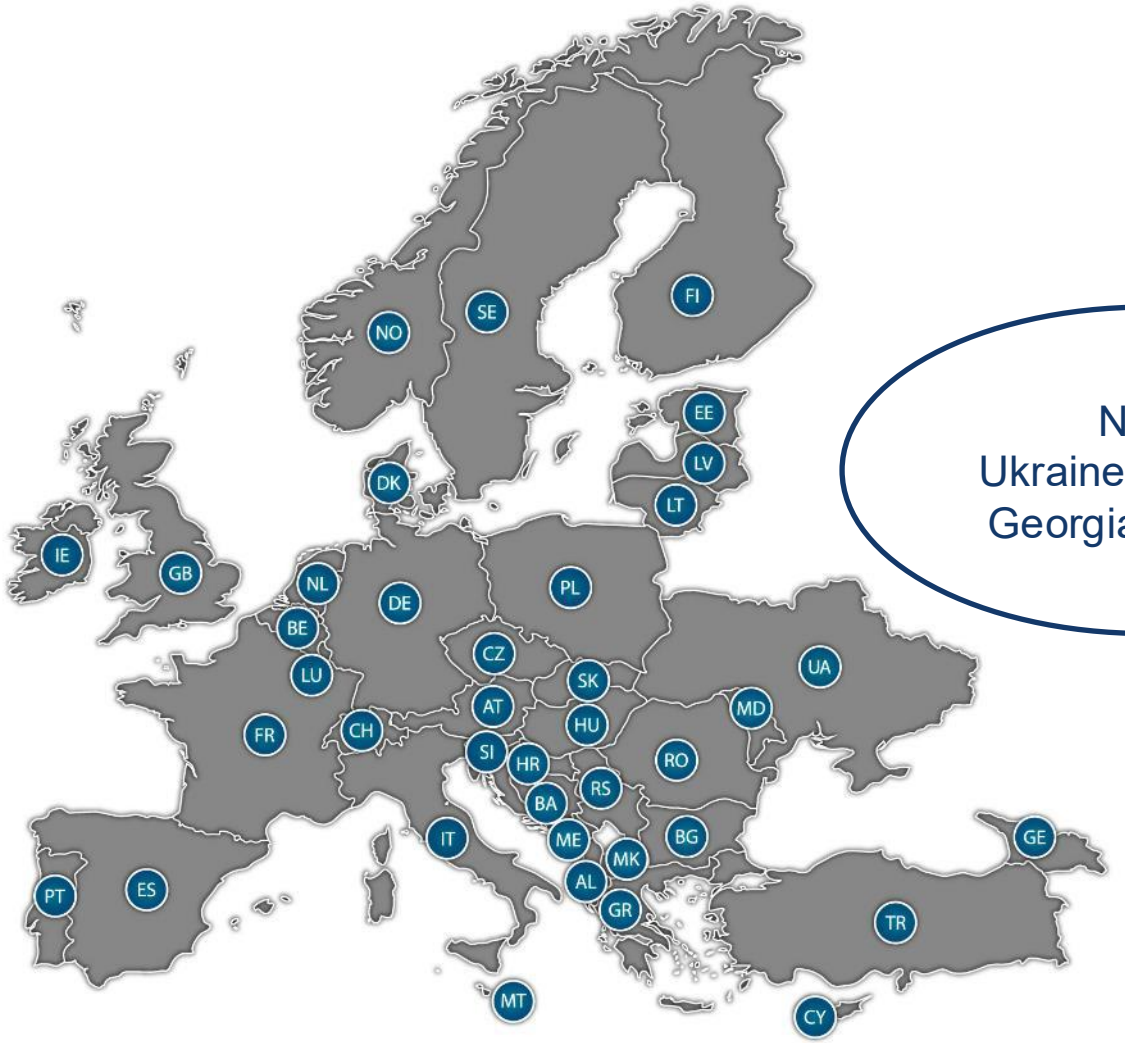

EURAMET membership
TC-T main role and organization
EURAMET TC-T activities
EMPIR TC-T comparisons
European Partnership on Metrology
TC-T knowledge transfer

EURAMET e.V.

The European Association of National Metrology Institutes

- **37 National Metrology Institutes**
- **82 Designated Institutes**
- **16 international Liaison Organisations** (e.g. other RMOs, BIPM, OIML, IAEA, WELMEC, Eurolab, Eurachem, EA)

- Providing stakeholders with **traceability** of measurement results **to the SI units** under the **Metre Convention** and **world-leading measurement solutions**
- Securing **world-wide trust** and **acceptance** of measurements
- Implementing **Metrology Research Programmes**
- Providing **Capacity Building**



NEW
Ukraine associate
Georgia member

EURAMET TC-T Line of action

The Technical Committee of Thermometry is concerned with all issues of measurement of

- temperature,
- humidity and moisture, and
- thermophysical quantities of materials
- as well as with scales, standards and reference materials necessary for metrology in these fields.

Thermometry

EURAMET TC-T Plenary

The TC-T is the **forum for scientific and technical cooperation** in the field of thermometry and related quantities. We contribute to the **elaboration and execution** of the Metrology Research Programmes and we are **responsible for the execution of the activities** required by EURAMET as the European Regional Metrology Organisation (RMO) for the fulfilment of the requirements of the CIPM MRA.

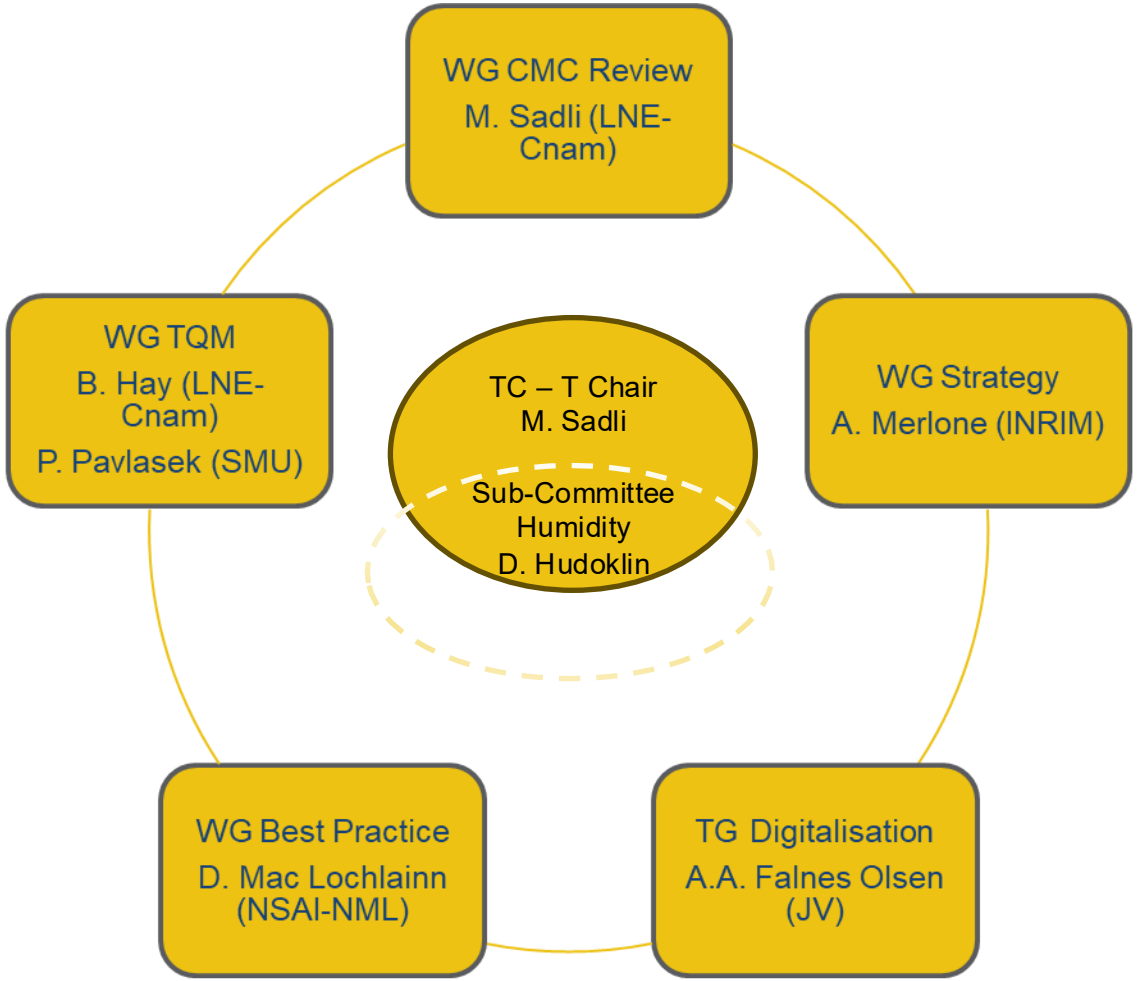
2025 Meeting, IMBIH, Sarajavo, 8-10 April 2025

- Workshop on CMC review process and review protocols
- WG meetings
- SC-H and TC-T: 70 attendees

2026 Meeting, BEV, Vienna, 14-16 April 2026

- Workshop on Disseminating the redefined kelvin
- WG meetings
- SC-H and TC-T: 80 attendees

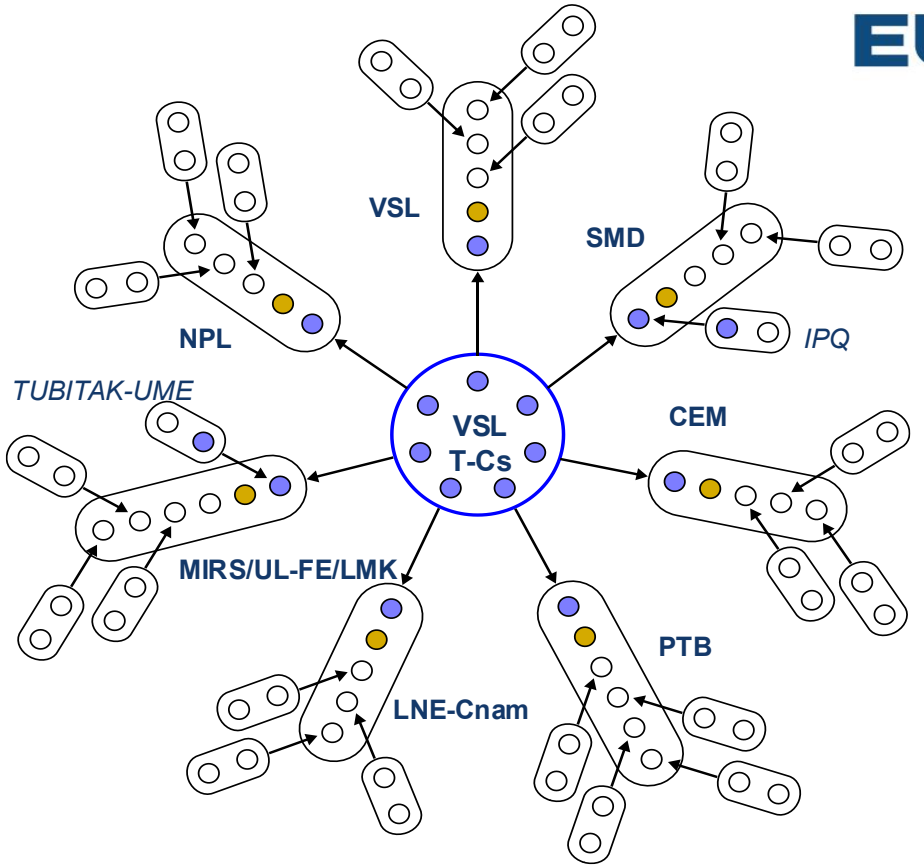
EURAMET TC-T Structure in 2026



New Comparisons

EURAMET-K7.202x: Triple point of water

- Pilot: VSL
- 34 participants, 7 copilots (with links to CCT-K7.2021)



Loop 1	Loop 2	Loop 3	Loop 4	Loop 5	Loop 6	Loop 7
LNE-Cnam* (FR)	NPL* (GB)	PTB* (DE)	SMD (BE)	LMK (SI)	CEM* (ES)	VSL* (NL)
DTI (DK)	RISE (SE)	GUM (PL)	IPQ* (PT)	UME* (TR)	INM-MD (MD)	ILNAS (LU)
Metrosert (EE)	VTT (FI)	CMI (CZ)	METAS (CH)	IMBiH (BA)	DPM (AL)	INTIBS (PL)
NSIA-NML (IE)	BEV (AT)	BFKH (HU)	FTMC (LT)	FSB-LPM (HR)	INM (RO)	UzNIM (UZ)
NSIA-NML (KZ)	JV (NO)	SMU (SK)	EIM (GR)	DMDM (RS)	INRiM (I)	

New Comparisons

Comparison in low and medium temperature radiation thermometry:

- Pilot: JV
- 14 participants, 2 loops
- Temperature range: -20 ° C to 1000 ° C
- Spectral range: 8-14 µm and 1.6 µm

Labs	[8-14] µm	1.6 µm (and 1.57 µm)
BEV, INRiM, DPM, METAS, PTB	YES	NO
UME, JV, CEM, NPL, SMU, RISE, CNAM, CMI	YES	YES
NSC IM	NO	YES
UL	?	?

Loop 1	Loop 2	Start time	End time
JV	PTB	01.10.2026	15.10.2026
METAS	UME	22.10.2026	05.11.2026
JV	DPM	12.11.2026	26.11.2026
RISE	UME	03.12.2026	17.12.2026
CNAM	JV	02.01.2027	16.01.2027
CEM	UME	23.01.2027	06.02.2027
INRiM	PTB	13.02.2027	27.02.2027
PTB	BEV	06.03.2027	20.03.2027
JV	UL	31.03.2027	14.04.2027
NPL	SMU	21.04.2027	05.05.2027
JV	CMI	12.05.2027	26.05.2027
UME	CEM	02.06.2027	16.06.2027
JV	PTB	23.06.2027	07.07.2027

The European Partnership on Metrology

•This new programme started in 2021 aiming at creating, by 2030, a sustainable and effective system for metrology at European level that ensures Europe has a world-class metrology system that:

- Provides metrology solutions, fundamental metrological reference data and methods, offering fit-for-purpose solutions supporting and stimulating European innovation and responding to societal challenges.
- Supports and enables effective design and implementation of regulation and standards that underpin public policies that address societal challenges.

•7 years Duration / 600 M€ budget

European Partnership on Metrology research projects

Current funded research projects (non comprehensive)

DireK-T, coordinated by R. Gavioso (INRIM) started in 2023. The overall goal of this project is to implement the kelvin redefinition (and MeP-K-19).

INFOTherm, Integrated European research, calibration and testing infrastructure for fibre-optic thermometry, coordinated by S. Krenek (PTB) devoted to developing metrology for fibre-optic thermometers to support accurate temperature measurements in industry

MultiFixRad, Improving the realisation of the kelvin by multiple fixed-point radiation thermometry led by A.A. Falnes Olsen (JV) about realising the redefined Kelvin for medium-scale National Metrology Institutes.

ThermoSI, Thermometry with embedded traceability for industrial applications led by J. Pearce (NPL)

PhoQuS-T, Photonic and quantum sensors for practical integrated primary thermometry led by O. Kozlova (LNE-Cnam) devoted to novel quantum sensors

+ many others…

EURAMET TC-T Publications

Published Calibration or Technical Guides

Calibration guides:

- CG 8 Guidelines on the Calibration of Thermocouples, Version 3.1, 02/2020 (update planned)
- CG 11 Guidelines on the Calibration of Temperature Indicators and Simulators by Electrical Simulation and Measurement Version 2.0, 03/2011 (update in progress)
- CG 13 Guidelines on the Calibration of Temperature Block Calibrators, Version 4.0, 09/2017
- CG 20 Guidelines on the Calibration of Temperature and/or Humidity Controlled Enclosures, Version 5.0, 09/2017

Technical guides:

- TG 1 Extrapolation of SPRT calibrations below the triple point of argon, 83.8058 K, and traceability in baths of liquid nitrogen at ~77.3 K
- TG 2 EURAMET Guide on Lifetime and Drift/Stability Assessment of Industrial Thermocouples
- TG 5 EURAMET TG “High Temperature Thermal Diffusivity Measurements by the Laser Flash Method” NEW

EURAMET TC-T Publications

Guides in preparation

- Guide on **surface temperature calibrations,** works coordinated by Michal Voldan (CMI) **<<<< Active**
- Guide on the calibration of **radiation thermometers**, coordinated by D. MacLochlainn (NSAI) **<<<< Almost ready!**
- Guide on **dew point calibrations,** works coordinated by Seda Oguz Aytekin (TUBITAK UME) **<<< On hold**
- Guide on **relative humidity calibrations**, works coordinated by Eric Georgin (CETIAT) **<<<< First draft**
- Guide on Air Temperature Sensor Calibration **<<< On hold**

2026 New projects

- Guide on resistance thermometry
- Update of calibration guide on thermocouples
- Guide on relative radiation thermometry

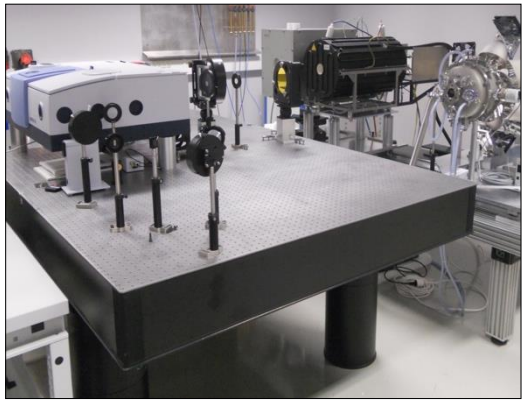
EURAMET TC-T Summer school on Thermophysical Quantities

- **Venue :** LNE, Paris and Trappes (France)
- **Date :** 1st – 4th Sep 2026 (3.5 days)
- **3 sub-fields**

  Thermal transport properties

  Caloric quantities

  Radiative properties



- **Programme**

  Courses / Presentations (2 days - Paris)

  Hands-on training (parallel sessions / 1.5 days – Trappes)

  - Guarded Hot Plate / laser flash apparatus / SThM
  - Dilatometers / Emissometers
  - DSCs / drop calorimeters

EURAMET TC-T CMCs in figures

- More than 1808 CMCs published; 114 CMCs published since 2024
- 9 CMCs under JCRB review; 18 CMCs under RMO review;
- +250 reviews during the last two years
- Improvement of the submission/reviewing process after the workshop in 2025: “sleeping CMCS” brought from 23 to 1! Reduction of the time between submission and publication…

	EURAMET
CMCs received for review	89
Responded "Will not review"	0
No reply to review request	1
Accepted but did not complete the review	4
Reviewed but did not vote when requested	0
Total CMCs reviewed	84
Total loss of rights	**5**
CMCs reviewed as a percentage of CMCs received for review	**94%**

Next TC-T: Lisbon (IPQ) from 6th – 8th April 2027

Thank you for your attention!