

CCT WG-Hu – Working Group for Humidity Highlights report to the CCT 2024 meeting

Stephanie Bell, Chair of CCT-WG-Hu

BIPM, 16 May 2024

CCT Working Group for Humidity

Terms of reference:

- to advise the CCT on matters relating to humidity;
- to pursue harmonization relevant to the field of humidity measurements;
- maintain an effective liaison with the international humidity and moisture community.

Tasks:

- operation of comparisons CCT-K6 and CCT-K8;
- strategic planning of ongoing and future key and supplementary comparisons in the field;
- draft a document on uncertainty in humidity;
- clarification of quantities, units, symbols and realizations relating to humidity measurement.

CCT-WG-Hu membership

- BEV/E+E, CENAM, CETIAT, INMETRO, INRIM, INTA, KRISS, MSL, NIM, NIST, NMC A-STAR, NMIA, NMIJ-AIST, NMISA, NPL, PTB, TUBITAK UME, VNIIFTRI ESB, VSL, VTT MIKES
- Plus three invited expert members, including IAPWS



Goodbye to:	Rien Bosma (invited expert) Rainer Feistel (IAPWS and Baltic Sea Institute) Julio Brionizio (INMETRO)
Change:	Yi Hong → Li Zhanyuan (NIM) Byung-II Choi → Sang-Wook Lee (KRISS) Seda Oguz Aytekin → Humbet Nasibli (TUBITAK UME) Leonel Lira Cortes → Enrique Martines Lopez (CENAM)
Hello to:	Matthijs Panman (VSL) Patrick Raab (BEV/E+E)

Progress on tasks

Key comparisons have been a main activity

High dew point range: 30 °C to 95 °C

Comparison	Pilot	Status	Joint analysis
CCT-K8	INTA	Draft A	INTA,
EURAMET.T-K8	PTB	Draft B	PTB, BEV/E+E

Dew and frost point range -50 °C to +20 °C

Original CCT-K6 was completed 2015

CCT-K6.2021 in planning. BEV/E+E is pilot, VSL assistant pilot.

See later agenda item ...

Progress on tasks

CMC review protocol for humidity, working with WG-CMC

- under revision aiming to reduce the workload of CMC review
- Considering adaptations to review criteria, to reduce effort of comparisons

Liaison activities

- WG-Hu convenes International Symposium on Humidity and Moisture
- Coming in 2025 as strand of TEMEPMEKO and ISHM 2025
- Active other liaison with other bodies (WMO, IAPWS) and others

Progress on tasks

Digitalisation

WG-Hu representative in CCT-TG-Dig.

Discussion of digitalisation for essential humidity functions

- saturation vapour pressure of water
- water vapour enhancement factor

To develop in machine readable form for digital workflows (e.g. DCCs)?

WG-Hu Members' research

Notably: new facilities, experimental data and analysis for water vapour enhancement factor;

- down to trace water vapour range
- above-atmospheric pressures, gases including N₂, H₂, Ar
- (EMPIR / Metrology Partnership projects)

Trickle of work on humidity quantities, units, symbols and realisations

CCT-WG-Hu Chairmanship

- Outgoing Chair: Stephanie Bell (NPL),
- Past Vice Chair → Incoming Chair: Hisashi Abe (NMIJ)

