2024 Report of CCPR-WG-SP TG9 OTDR (Length) Comparison

Jacques Morel

05.06.2024 / METAS

CCPR-WG-SP TG9 OTDR comparison

The main objective of TG9 is to address relevant topics related to OTDR calibration
It was agreed to concentrate on following tasks:

- 1. Discussion / improvement of CMC entries on Fibre Optics for OTDR
  - Improved service categories for fibre optics have been prepared within the CCPR-WG-CMC-TG 4 and have been approved by the CCPR-WG-CMC and are listed in the "Classification of Services in Photometry and Radiometry document", Version No. 17, 10 July 2023.
  - These service categories have been now fully integrated in the BIPM KCDB CMC structure.
  - Following entries were specifically defined for OTDR distance and attenuation scale calibration
    - 7.10.1 Location offset, OTDR: wavelength, pulse width, distance range, index of refraction, specification standard used
    - 7.10.2 Distance scale deviation, OTDR: wavelength, pulse width, distance range,index of refraction, specification standard used
    - 7.5.2 Loss, measuring instrument: wavelengths or wavelength range.

CCPR-WG-SP TG9 OTDR comparison

- **2. Realization of a series of Inter-comparisons to support the new entries**
  - APMP.PR-S8 supplementary inter-comparison of optical fibre length calibration is still ongoing
    - A first version of Draft B report was prepared by KRISS in March 2023, and a revision of Draft-B report is now under discussion with APMP.PR chair.
    - The report should be finished before the end of this year.
  - A supplementary inter-comparison on OTDR calibration within AFRIMETS is still under preparation
    - NMISA is willing to take up the lead and will confirm that point soon.
    - A first draft of the technical document was already prepared, jointly between NIS, NMISA and METAS.
  - As a preparation for this first supplementary inter-comparison, an informal inter-comparison leaded by NIS was carried out between NIS, NMISA and METAS, using an OTDR provided by NIS
    - The measurements are now complete and the evaluation of the results is ongoing. NIS will provide results before the end of this year.
    - Based on the expertise gained out of this informal-intercomparison, the next steps will be to optimize the technical protocol for the supplementary inter-comparison and to define the definitive list of participants.
    - METAS has already found an instrument manufacturer willing to make an OTDR available for this inter-comparison.
    - Objective: To start the formal supplementary inter-comparison as soon as possible, presumably in 2025.

Thank you for you attention

METAS
Ihre Referenz.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Institut für Metrologie METAS