



CRÉER
LA
CONFIANCE



BIPM CCPR WG-SP TG6 Fibre Optics

JIMMY DUBARD

4 June 2024

le cnam

LABORATOIRE
NATIONAL
DE MÉTROLOGIE
ET D'ESSAIS



TG6 activities (since 2009)

- ❑ 2010 meeting at NPL during the CCPR 2010 meetings. Focus on NMIs research activities and collaboration needs. Creation of the TG9 “OTDR length comparison”
- ❑ 2016 workshop at BIPM during CCPR meetings. Participation of the chairman of the IEC TC86
- ❑ 2017 conference at CLEO-PR, OECC & PGC 2017 held in Singapore July 31 to August 4
- ❑ 2022 on-line workshop involving major Fiber Optics manufacturers

Open issue: new TG6 chair or closing of the TG6

Terms of reference

- to discuss measurement issues and report on progress of the work performed in NMIs;
- to identify new measurements needs of the fiber optics community;
- to define priorities in terms of research activities;
- to facilitate coordinated research work between NMIs;
- to give input to the other CCPR WGs to serve the needs for SI traceability in the fiber optics field (this implies for instance the definition of relevant KC to address specific measurement quantity);
- to monitor standards developments in IEC 86 Fibre Optics.

TG6 activities

- ❑ 2010 meeting at NPL during the CCPR 2010 meetings. Creation of the TG9 “OTDR length comparison”
- ❑ 2016 workshop at BIPM during CCPR meetings
- ❑ 2017 conference at CLEO-PR, OECC & PGC 2017 held in Singapore July 31 to August 4
- ❑ 2022 on-line workshop

BIPM CCPR WG-SP TG6

Terms of reference

- to discuss measurement issues and report on progress of the work performed in NMIs;
- to identify new measurements needs of the fiber optics community;
- to define priorities in terms of research activities;
- to facilitate coordinated research work between NMIs;
- to give input to the other CCPR WGs to serve the needs for SI traceability in the fiber optics field (this implies for instance the definition of relevant KC to address specific measurement quantity);
- to monitor standards developments in IEC 86 Fibre Optics.

TG6 activities

- ✓ 2010 meeting at NPL during the CCPR 2010 meetings. Focus on NMIs research activities and collaboration needs.
- ✓ 2016 workshop at BIPM during CCPR meetings. Report on new developments at NMIs

BIPM CCPR WG-SP TG6

Terms of reference

- to discuss measurement issues and report on progress of the work performed in NMIs;
- to identify new measurements needs of the fiber optics community;
- to define priorities in terms of research activities;
- to facilitate coordinated research work between NMIs;
- to give input to the other CCPR WGs to serve the needs for SI traceability in the fiber optics field (this implies for instance the definition of relevant KC to address specific measurement quantity);
- to monitor standards developments in IEC 86 Fibre Optics.

TG6 activities

- ✓ 2016 workshop at BIPM during CCPR meetings. Participation of the chairman of the IEC TC86
- ✓ 2022 on-line workshop involving major Fiber Optics manufacturers

Measurement techniques are quite well defined. Traceability is through power measurement. Actual uncertainty calibration capabilities of NMIs meet the industry requirements

BIPM CCPR WG-SP TG6

Terms of reference

- to discuss measurement issues and report on progress of the work performed in NMIs;
- to identify new measurements needs of the fiber optics community;
- to define priorities in terms of research activities;
- to facilitate coordinated research work between NMIs;
- to give input to the other CCPR WGs to serve the needs for SI traceability in the fiber optics field (this implies for instance the definition of relevant KC to address specific measurement quantity);
- to monitor standards developments in IEC 86 Fibre Optics.

TG6 activities

- ✓ 2010 meeting at NPL during the CCPR 2010 meetings. Creation of the TG9 “OTDR length comparison”

➤ Comparisons

- Fiber length measurement comparison « APMP.PR-S8 »
- OTDR comparison on-going

➤ Improved service categories within CCPR-WG-CMC-TG4

BIPM CCPR WG-SP TG6

Terms of reference

- to discuss measurement issues and report on progress of the work performed in NMIs;
- to identify new measurements needs of the fiber optics community;
- to define priorities in terms of research activities;
- to facilitate coordinated research work between NMIs;
- to give input to the other CCPR WGs to serve the needs for SI traceability in the fiber optics field (this implies for instance the definition of relevant KC to address specific measurement quantity);
- to monitor standards developments in IEC 86 Fibre Optics.

TG6 activities

- ❑ 2016 workshop at BIPM during CCPR meetings. Participation of the chairman of the IEC TC86
- ❑ 2022 on-line workshop involving major Fiber Optics manufacturers, following the IEC TC86 meetings in San Francisco
- ❑ Participation of TG6 members to IEC TC86 WG

MERCI DE VOTRE ATTENTION

Measurement issues

- Probability distribution of Reference connectors attenuation
- Attenuation uncertainties related to MM launch conditions (Encircled Flux): 10 % of the attenuation in dB? 850 nm vs 1300 nm?
- Uncertainty of MM attenuation measurements when using an OTDR
- Reference reflectance with low uncertainty (SMF)