



## **ANNEX 1**

### **Pilot Study ILC: METAS and NIST - Coaxial Noise Source up to 50 GHz**

METAS wants to extend its CMCs for coaxial noise sources from the current 33 GHz to 50 GHz. In order for our CMCs to be accepted, we need a measurement comparison. NIST is the only NMI with measurement capabilities for 2.4 mm noise sources up to 50 GHz. NIST has agreed to conduct this comparison with METAS.

#### **Travelling Standard**

The travelling standard (Keysight 346CK01 Noise Source) is provided by METAS.

#### **Schedule**

Comparison Sequence: METAS – NIST – METAS

- Measurement at METAS: August 2025
- Measurement at NIST: early October to mid-December 2025
- Measurement at METAS (stability of the Travelling Standard): January to February 2026
- Comparison of the measurement data and report by METAS: March 2026

#### **Contact Person**

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- NIST: Dazhen Gu, [dazhen.gu@nist.gov](mailto:dazhen.gu@nist.gov)

#### **Extend of the Comparison**

- Available Noise Temperature
- Effective Noise Temperature
- Available Excess Noise Ratio in dB
- Effective Excess Noise Ratio in dB
- On Reflection Coefficient
- Off Reflection Coefficient
- Frequency Points: 1 GHz to 50 GHz in 1 GHz step

#### **Measurement Conditions**

- Ambient temperature: 23 °C
- The noise source is operated continuously, unmodulated at 28.00 VDC.
- The noise source is measured in warmed up condition.

#### **Documentation of the results**

METAS and NIST will document their results in the form of a calibration certificate and a GUM compliant measurement uncertainty budget. The measurement results should also be made available electronically as ASCII files.