

TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division



Quality Assurance Manual

Resource Requirements; Metrological Traceability

6 Resource Requirements

6.5 Metrological Traceability

6.5.1 The TBI Breath Alcohol Unit operations ensure calibrations and measurements made are traceable to the International System of Units (SI). Traceability is established by means of measuring BA instruments using measurement standards with a documented unbroken chain of calibrations or comparisons to relevant primary standards of the SI units of measurement. The calibration certificates issued by the Breath Alcohol Unit shall contain the measurement results, including the measurement uncertainty and/or a statement of compliance with an identified metrological specification.

Testing units will utilize competent external calibration services with the capability to establish measurement traceability to the International System of Units (SI units). The calibration certificates issued by these entities will contain the calibration results, including the measurement of uncertainty, and/or a statement of compliance with an identified metrological specification.

6.5.1.1 The TBI-FSD will ensure, if available, suppliers of external calibration services for measuring instruments and/or reference standards, and certified reference materials used to establish or maintain metrological traceability shall be either:

- a National Metrology Institute that is a signatory to the BIPM-CIPM Mutual Recognition Arrangement with the calibration to be performed or the certified reference materials to be purchased listed in Appendix C of the BIPM key comparison database (KCDB); or
- a service supplier accredited to ISO/IEC 17025 by an accrediting body that is a signatory to the ILAC Mutual Recognition Arrangement, with the calibration to be performed listed in a scope of accreditation; or
- an accredited reference material producer that is accredited to ISO 17034 by an accrediting body that is a signatory to a mutual or multilateral recognition arrangement in an ILAC recognized regional accreditation cooperation or the ILAC Mutual Recognition Arrangement, with a scope of accreditation covering the certified reference material.

6.5.1.2 When a supplier meeting the requirements of standard **6.5.1.1** is not available, the chosen supplier must be evaluated for competence, measurement capability and traceability. Objective evidence of this confirmation shall be readily available and maintained by the laboratory. It is the Unit Supervisor's responsibility to notify the Quality Assurance Manager of such circumstances and supply the Quality Assurance Manager with the objective evidence. The Quality Assurance Manager will maintain this documentation.

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6.5.1.3 The TBI-FSD does not perform in-house calibration of its own equipment.

6.5.1.4 If a certified reference material is changed in a way that alters the traceable measurement value, then the equipment used to alter the certified reference material shall be evaluated for applicability of measurement traceability accreditation requirements.

6.5.2 TBI-FSD will ensure reported measurements are traceable to SI units. The link to SI units may be achieved by reference to national measurement standards.

6.5.3 Where metrological traceability to the SI units is not possible, disciplines shall provide confidence in measurements by establishing traceability to appropriate measurement standards by the use of certified reference material provided by a competent supplier or by the use of specified methods and/or consensus standards that are clearly described and agreed upon by all parties concerned. Where possible, the laboratory will participate in interlaboratory comparisons.