

# Equipment Calibration and Maintenance

## Table of Contents

<b>1</b>	<b>PURPOSE</b> .....	<b>2</b>
<b>2</b>	<b>SCOPE</b> .....	<b>2</b>
<b>3</b>	<b>EQUIPMENT CALIBRATION/MAINTENANCE</b> .....	<b>2</b>
3.1	Equipment Handling, Transport, Storage and Use.....	2
3.1.1	<i>Field Examinations</i> .....	2
3.2	Calibration .....	2
3.3	Maintenance.....	3
3.4	Performance Check.....	3
<b>4</b>	<b>REFERENCES</b> .....	<b>3</b>
<b>5</b>	<b>REVISION HISTORY</b> .....	<b>3</b>

## Equipment Calibration and Maintenance

### 1 PURPOSE

This document describes the methods for calibrating and maintaining equipment needed for the correct performance of laboratory activities.

### 2 SCOPE

This procedure applies to FTU personnel using technical procedures wherein the equipment can influence the results.

### 3 EQUIPMENT CALIBRATION/MAINTENANCE

#### 3.1 Equipment Handling, Transport, Storage and Use

Whenever possible, equipment needed for the correct performance of laboratory activities and that can influence the results will be kept under the control of FTU personnel.

##### 3.1.1 Field Examinations

FTU equipment will be stored and transported in suitable protective and secure containers for field examinations. A performance check will be completed prior to use and the method for checking their quality are outlined in the FTD technical procedures dictating their use.

#### 3.2 Calibration

The following is a list of FTU equipment with calibration requirements:

Equipment	Calibration Requirements	Calibration Interval
Balance	Manufacturer's specifications	Annually
Caliper	Manufacturer's specifications	Annually
Hott Rod	Manufacturer's specifications Added ranges: 10, 18, 26 in	Annually
6 in Steel Ruler	Manufacturer's specifications	5 years
36 in Steel Ruler	Manufacturer's specifications Added ranges: 3, 6, 12, 16, 18, 24 in	Annually
Sound Meter	Manufacturer's specifications	Annually
Calibration tool G1 Ve1	Manufacturer's specifications	5 years
Sinusoidal Reference Standard 525E	Manufacturer's specifications, NIST guidance	5 years
Standard bullet	NIST guidance	NIST guidelines
Standard cartridge case	NIST guidance	NIST guidelines

Specifications for the calibration service provider(s) will be comply with the procedures outlined in section 9.2.2 in the [Quality Assurance Manual](#).

### 3.3 Maintenance

The following is a list of FTU equipment with preventative maintenance requirements:

Equipment	Maintenance Service	Interval
Comparison Microscope	External vendor	2 years
Stereo Microscope	External vendor	Annually

### 3.4 Performance Checks

Performance check records for reagents prepared in the FTU will be maintained in the appropriate laboratory location, specifically those designated areas where gunshot residue distance determination and serial number restoration examination are routinely performed.

Other performance check records will be maintained, as specified in FTD technical procedures, in Resource Manager, or in the unit.

## 4 REFERENCES

Precision Reference Specimens, [Online]. Available: <http://www.rubert.co.uk/reference-specimens/> [February 2022]. Rubert & Co. Ltd., United Kingdom.

Ryan Lilien (2017). Applied Research, Development, and Method Validation for a Statistically Based Comparison of Tool Marks using GelSight-Based Three-Dimensional Imaging and Novel Comparison Algorithms for Firearm Forensics, [Online]. Available: <https://www.ojp.gov/pdffiles1/nij/grants/250538.pdf> [February 2022]. DOJ Office of Justice Programs' National Criminal Justice Reference Service, Rockville, MD.

*Standard Bullets and Cartridge Cases*, [Online]. Available: <https://www.nist.gov/pml/sensor-science/surface-and-nanostructure-metrology/standard-bullets-and-cartridge-cases> [February 2022]. National Institute of Standards and Technology, Surface and Interface Metrology Group, Gaithersburg, MD.

## 5 REVISION HISTORY

Revision	Issue Date	Changes
00	2/18/2022	Drafted new manual. Merged sections from FTD-107-02.