

# CTSI Professional Competency Framework (CPCF) Portfolio Skills Laboratory Equipment - Metrology (Northern Ireland Candidates)

Portfolios are used within the CPCF as a method to assess a student's skills through the performance of specified tasks where competency is determined against performance criteria. The skills specified in this document are recognised as the required skills for all officers to demonstrate and will come from within their daily work life.

Both CTSI and Local Authorities work collaboratively together to develop student's skills during the course of their progression through the Stage 2 Trading Standards Practitioner Diploma (TSPD) Award requirements. Additionally, the portfolio allows employers to see that their staff have the appropriate skills to go out and carry out their duties within their appointed work area.

## Assessments

The assessment of the portfolio will be conducted using a two-tiered system.

**Employer led:** your employer will provide you with an appropriately qualified **Assessor** who will determine when you have demonstrated the skills required in the portfolio criteria and will sign off the portfolio for Verification (external verification). **Your Assessor needs to ensure they are passing your evidence to the Verifier on a regular basis.** The following link will take you to information on your assigned Verifier. Information will be found under the Portfolio Information section.

<https://www.tradingstandards.uk/practitioners/training-development/qualifications-resources#qualificationreview>

**An appropriately qualified assessor means:** the person has completed CTSI's Assessor training (previously delivered as a one-day training, offered under the TSQF framework) and has completed the ongoing yearly CPPD training. Assessors must hold the current CPPD certificate to undertake assessment on any portfolio each year. Assessors are required to be 'deemed competent' to assess portfolio subjects/areas.

**'Deemed competent' explained:** a person is deemed competent where they hold an appropriate qualification. For areas with statutory or code of practice requirements, it is expected that the Assessor will hold the equivalent qualification for example Weights and Measures S73 certificate; Assessors will have one of the following qualifications: DTS, DCATS (including Legal Metrology), or the Modular Certificate in Legal Metrology.

**CTSI led:** on completion of the portfolio the **Verifier** (formerly known as External Verifier) employed by CTSI, will assess your portfolio. Their main area of concern will be to ensure that the assessment of the portfolio has been carried out correctly. They will sample a percentage of the evidence provided as part of this verification process.

# What happens after verification?

Once the Verifier is satisfied that the portfolio has been completed correctly, they will provide CTSI's Education Team with a sign off report. The outcome will be taken to the next available ratification meeting.

CTSI will write to you (via email) with the final ratified outcome. When you have completed all aspects of the award, you will be written to separately (via email) with confirmation of your award. You will be given a period of time to contact the team should you want your name to be shown on your certificate in a particular way. After a set period of time that will be indicated in your Award letter, the team will then provide you with your certificate.

## Education Department Contact information

Telephone: 01268 582242  
 Email: [qualifications@tsi.org.uk](mailto:qualifications@tsi.org.uk).

# CTSI Professional Competency Framework (CPCF) Structure

### Stage 1: Trading Standards Practitioner Certificate (TSPC)

Is aligned to level four of the National Qualifications Framework (NQF) and consists of three units (units 1-3).

<b>Unit 1</b>	<b>Regulatory Environment &amp; Enforcement</b>	2 - hour written exam	2,000 - word Reflective Statement
<b>Unit 2</b>	<b>Business &amp; Consumer Legal Frameworks</b>	2 - hour written exam	2,000 - word Case Study
<b>Unit 3</b>	<b>Trading Standards Law Part 1</b>	2 - hour written exam	2,000 - word Report

### Stage 2: Trading Standards Practitioner Diploma (TSPD)

Is aligned to level five of the NQF and consists of three units (units 4-6).

Completion of generic portfolio required along with subject portfolio's unless you have the core skills portfolio.

<b>Unit 4</b>	<b>Legal Metrology (Mandatory)</b>	2-hour written exam	Practical and oral exam Reflective statement Professional interview Portfolio
	<b>Trading Standards Law Part 2</b>		
	plus one subject from:		
	<b>Food Standards</b>	1.5-hour written exam	Oral exam Portfolio
	<b>Feed</b>	1.5-hour written exam	Oral exam Portfolio
	<b>Product Safety</b>	1.5-hour written exam	Portfolio
<b>Unit 5</b>	<b>Investigations</b>		Portfolio Professional interview
<b>Unit 6</b>	<b>Regulating Markets</b>		Portfolio Professional interview

### Stage 3: Trading Standards Advanced Practitioner (degree level) (TSAP)

This stage will require candidates to complete an 8,000 word project. The project will be of benefit to either your local authority, your region or the profession as a whole.

On completion of this stage you will be awarded the Trading Standards Advanced Practitioner (degree level). This award does not automatically give you CTSP status. You will be required to go through the application process as found on CTSI's website.

The Laboratory Equipment – Metrology unit sets out the knowledge and skills that have been identified for Northern Ireland candidates undertaking the CPCF.

This portfolio is a tool which allows you, as a candidate, to demonstrate the skills associated with this unit. It will allow you to provide evidence of those skills which can be assessed by another competent professional in the workplace, against an objective framework of performance criteria.

All work carried out must be of a sufficient standard and must provide evidence which is capable of being assessed and verified against the skills outcomes and performance criteria listed.

You may also require some specific knowledge to complete the portfolio, as certain skills are impossible to demonstrate without a detailed knowledge relating to the matters or procedure in question.

**This portfolio MUST be completed and submitted for Verification prior to sitting the written examination.**

The portfolio is divided into skills outcomes by type, and then the associated performance criteria which must be met. Each task listed must be performed and reported on by the candidate.

This portfolio is aligned to level 5 of the National Qualifications Framework (level 7 of SCQF) and therefore it assumes that basic skills have already been developed by the employer. It is a professional skills portfolio set at the level expected of a competent practitioner working within the trading standards profession.

The **Laboratory Equipment - Metrology** unit has been specifically written as an alternative subject for Northern Ireland candidates to complete instead of the optional subjects of, food, feed or product safety from Stage 2 of the CPCF. On completion of the following:

- Unit 4: Weights and Measures.
- Unit 4: Laboratory Equipment – Metrology
- Unit 5: Investigations
- Unit 6: Regulating Markets

candidates from Northern Ireland will be awarded the Trading Standards Practitioner Diploma (TSPD).

On completion of this stage, you will be eligible to move on to Stage 3: Trading Standards Advanced Practitioner (TSAP).

# Laboratory Equipment – Metrology portfolio

Please ensure you have read the General information, Structure of CPCF and Key information sections at the start of this document first before commencing with this portfolio.

This portfolio is designed to allow you as a candidate to demonstrate specific skills related to a calibration laboratory technician and manager. This portfolio should be completed alongside any examination requirements for this subject.

Generally, you will be expected to demonstrate the skill being assessed to the satisfaction of your Assessor and Verifier, but it is possible that some skills may be difficult to demonstrate doing a normal range of duties. If this is the case then, where appropriate, your skills may be assessed using verbal or written questions.

The Laboratory Equipment – Metrology skills are divided up as follows:

1. Identification of the quality assurance in metrology laboratories including national, EU and International frameworks for its provision (including appropriate legislation where applicable).
2. Uncertainty of measurement principles relating to mass, length, volume, flow and density.
3. Care, maintenance, calibration and history of calibration equipment.
4. Principles of quality assurance.
5. Following and applying good laboratory practice.
6. Maintaining a safe working environment.
7. Avoiding contamination or cross contamination of equipment or artefacts.
8. Researching applicable procedures and standards.
9. Accuracy in performing tasks.
10. Planning and execution of tasks.

In completing the portfolio, the following is the minimum for which you will need to provide evidence of. The evidence provided should be, as far as possible, part of the day-to-day work of the Service or Organisation. You should carry out as many activities as deemed necessary by your Service or Organisation and Assessor to ensure that you can demonstrate the required performance competency. It is recognised however that some criteria may be difficult to fulfil. In this case and where it is appropriate to do so, performance criteria may be assessed using verbal or written questions.

## Task A: Common for mass, length, weighing instruments and volume

This task is strategic and is common to mass, length, weighing instruments and volume and therefore any of these standards may be used in demonstrating the required competency. To complete the task the candidate must:

1. Conduct an environmental audit of existing laboratories to include Health and Safety, suitability to OIML G13.
2. Report on the suitability of calibration interval on highest standards maintained, evaluation of historical data and forecasting.
3. Conduct an audit of previously completed calibration to include traceability, environmental, training records in a vertical audit of relevant procedures.

Performance criteria:

1. Has the candidate demonstrated that they were able to adequately and correctly plan, execute and report the findings of an environmental audit taking into account all relevant quality factors including health and safety practices?
2. Has the candidate demonstrated that they were able to determine and use the appropriate analytical tools to determine the suitability of the calibration interval of the standard examined with reference to historical data and forecasting tools?
3. Has the candidate demonstrated that they were able to adequately and correctly plan, execute and report on an audit of a previously calibrated standard with specific reference to environment, training records and all other relevant procedures?

### **Task B: Mass**

This task focusses on standards for mass and addresses the skills which are specific to ensuring that assessment and calibration is carried out in accordance with laboratory and other relevant protocols. To complete this task the candidate must:

1. Perform Comparator evaluations (micro mass) Linearity, repeatability in the range 25 kg to 1mg.
2. Prepare uncertainty budgets to support comparator suitability at M1, F2, F1 and E2 in the range 1 mg to 25 kg.
3. Prepare uncertainty budgets to support comparator suitability when conducting group weighing, for example imperial weights at F2 uncertainty.
4. Conduct an intra laboratory comparisons with at least 5 different masses at different accuracy classes.
5. Involve participation in inter laboratory comparison.

Performance criteria:

1. Has the candidate demonstrated that they were able to plan, conduct and report on each evaluation, comparison or preparation of uncertainty budgets?
2. Has the candidate demonstrated that they were able to follow all applicable procedures and laboratory working practices correctly when carrying out the listed tasks?
3. Has the candidate demonstrated that they were able to reach justifiable conclusions and recommendations when carrying out inter-laboratory comparisons on five different masses?

### **Task C: Volume**

This task focusses on standards of volume and addresses the skills which are specific to calibration of this with volumetric or gravimetric methodologies and carried out in accordance with laboratory and other relevant protocols. To complete the task the candidate must:

1. Complete a Balance assessment.
2. Prepare uncertainty budgets to support balance suitability in the range 20 litres to 0.01 millilitres (micropipettes) when conducting gravimetric determinations.
3. Prepare uncertainty budgets to support volumetric calibrations using proving tanks.
4. Conduct an intra laboratory comparison with at least 5 different volumes.
5. Involve participation in inter laboratory comparison.

Performance criteria:

1. Has the candidate demonstrated that they were able to plan, conduct and report on each evaluation/assessment, comparison or preparation of uncertainty budgets?
2. Has the candidate demonstrated that they were able to follow all applicable procedures and laboratory working practices correctly when carrying out the listed tasks?
3. Has the candidate demonstrated that they were able to reach justifiable conclusions and recommendations when carrying out inter-laboratory comparisons on five different volumes?

### **Task D: Length**

This task focuses on standards of length and addresses the skills which are specific to calibration of rigid, flexible measures, micrometers and verniers and carried out in accordance with laboratory and other protocols. To complete the task the candidate must:

1. Prepare uncertainty budgets to support measurements in the range 30m to 1m using rigid and flexible length standards.
2. Prepare uncertainty budgets to support measurements in the sub millimetre measurements using micrometers or Vernier callipers.
3. Intra laboratory comparison with at least 5 different length measures.

Performance criteria:

1. Has the candidate demonstrated that they were able to follow all applicable procedures and laboratory working practices correctly when carrying out the listed tasks?
2. Has the candidate demonstrated that they were able to reach justifiable conclusions and recommendations when carrying out inter-laboratory comparisons on five different lengths?

### **Task E: Density**

This task focuses on methods for calculating the density of liquids in the laboratory using methods for the determination of mass and volume and the uncertainties which arise when carrying this out. To complete the task the candidate must:

1. Prepare uncertainty budgets to support density measurements of water, orange juice and beer using appropriate density measurement methods from OIML G14.
2. Conduct density measurements using appropriate density measurement methods from OIML G14 for water, orange juice and beer.

Performance criteria:

1. Has the candidate demonstrated that they were able to plan, conduct and report on each evaluation, comparison or preparation of uncertainty budgets?
2. Has the candidate demonstrated that they were able to follow all applicable procedures and laboratory working practices correctly when carrying out the listed tasks?

### **Task F: Weighing Machines**

This task focusses on the methods of determination of the accuracy of trade use weighing machines in the laboratory. To complete the task the candidate must:

1. Test in accordance with UKAS Lab 14 at least 5 non-automatic weighing instruments of differing capacities, to include Class I, II and III.
2. Test in accordance with OIML R76 at least 5 non-automatic weighing instruments of differing capacities, to include Class II and III.
3. Prepare uncertainty budgets to support calibrations of weighing machines
4. Conduct an intra laboratory comparison with at least 5 different capacities of weighing machines.

Performance criteria:

1. Has the candidate demonstrated that they were able to plan, conduct and report on each test and preparation of uncertainty budgets?
2. Has the candidate demonstrated that they were able to follow all applicable procedures and laboratory working practices correctly when carrying out the listed tasks?
3. Has the candidate demonstrated that they were able to reach justifiable conclusions and recommendations when carrying out inter-laboratory comparisons on five different masses?