
Overview

This standard identifies the competences you need to prepare facilities for the testing of electronic components and circuits, in accordance with approved procedures. In particular, you will be expected to undertake a number of test-related generalised preparations, to review all the requirements for testing, to obtain and prepare all standard and special test equipment and facilities for use, complete all pre-test preparations on the components or circuits to be tested and to report the completion of the preparations to the appropriate people.

Your responsibilities will require you to comply with organisational policy and procedures for the preparation activities undertaken and to report any problems with the activities or with the tools and equipment to be used, that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking full responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to applying test preparation procedures. You will understand the tests being prepared for and their application and will know about the operation of the items to be tested, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out the preparation activities in a test environment for electronic components and circuits and with the associated test equipment used. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace.

Performance criteria

You must be able to:

- P1 work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
- P2 obtain the required test equipment and ensure that it is in safe and usable condition
- P3 prepare facilities and equipment in line with work requirements and specifications
- P4 ensure safety arrangements are in place to protect other workers from activities likely to disrupt normal working
- P5 check completion of preparations using organisational procedures
- P6 deal with problems within your control and report those that cannot be solved
- P7 complete and store all relevant documentation in accordance with organisational requirements
- P8 leave the work area in a safe condition on completion of the activities, as per organisational requirements

Knowledge and understanding

You need to know and understand:

- K1 how to work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
- K2 the importance of wearing the appropriate personal protective equipment (PPE), and of keeping the work area clean and tidy
- K3 what constitutes a hazardous voltage and how to reduce the risks of a phase to earth shock
- K4 how to effectively deal with emergency situations in relation to electric shock and safe isolation
- K5 how to obtain authority to conduct the test preparations, the relevant work areas and any specific permit-to-work procedures that are used
- K6 the clean work area protocols that should be used
- K7 how to obtain and use the organisation/customer specifications for the post-production tests
- K8 how to check the calibration status of the authorised test facilities and equipment to be used
- K9 how to set up and use the range of test equipment items for the post-production tests
- K10 how to prepare the products for testing
- K11 how to check that tools and equipment are free from damage or defects, are in a safe and usable condition and are configured correctly for their intended purpose
- K12 the basic operating principles of the electronic components/systems/equipment to be tested
- K13 the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

K14 how to access, use and maintain information to comply with organisational requirements and legislation

Scope/range related to performance criteria

1. Complete all of the following preparations for testing:
 - 1.1 use the correct issue of drawings, job/order instructions and specifications
 - 1.2 adhere to health and safety regulations, systems and procedures to realise a safe system of work
 - 1.3 follow clean work area protocols, where appropriate
 - 1.4 prepare the testing facilities, in line with organisational procedures
 - 1.5 create and store records, in accordance with appropriate procedures
2. Prepare facilities for testing one of the following manufactured electronic components or circuits:
 - 2.1 capacitors
 - 2.2 microwave components
 - 2.3 resistors
 - 2.4 spark gaps
 - 2.5 inductors
 - 2.6 charge-coupled devices
 - 2.7 interconnection devices
 - 2.8 printed circuit board/assemblies
 - 2.9 sensor devices
 - 2.10 thin film circuitries
 - 2.11 optical devices
 - 2.12 thick film circuitries
 - 2.13 visual display screens
 - 2.14 flexible film circuitry
 - 2.15 switching components
 - 2.16 other specific components or circuits
3. Review the testing requirements, to include all of the following:
 - 3.1 obtain and check the testing specification details
 - 3.2 identify all standard facilities/equipment needed for the testing
 - 3.3 identify any special facilities/equipment/tools for testing
 - 3.4 check whether any special safety measures are needed
4. Obtain and prepare three of the following types of equipment for the tests:
 - 4.1 oscilloscopes
 - 4.2 power supplies
 - 4.3 logic analysers
 - 4.4 voltage meters
 - 4.5 waveform analysers
 - 4.6 current meters
 - 4.7 signal generators
 - 4.8 resistance meters
 - 4.9 Q meters
 - 4.10 temperature meters
 - 4.11 oscillators
 - 4.12 humidity meters
 - 4.13 automated X-ray inspection

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- 4.14 automated optical inspection
 - 4.15 automatic flying probe testers
 - 4.16 functional test equipment
 - 4.17 other test equipment (specify)
 - 5. Conduct all of the following checks, to ensure that:
 - 5.1 the equipment is correctly calibrated
 - 5.2 any portable equipment complies with current safety standards
 - 5.3 testing aids/facilities are suitable (such as condition, status, availability)
 - 5.4 test interfaces/leads are suitable (such as condition, availability)
 - 5.5 items to be tested are ready
 - 6. Prepare the equipment/systems/components to be tested by completing all of the following activities:
 - 6.1 erect barriers and warning notices, where appropriate
 - 6.2 connect the equipment/systems/components to be tested to any required mains/utilities, ensuring they are initially all safely isolated
 - 6.3 make all the test connections required to conduct the specified tests/checks

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Preparing facilities for testing electronic components and circuits



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