SEMEEE315

Checking the compliance of electronic components

Overview

This standard identifies the competences you need to carry out the checking and inspection of electronic components during or on completion of the manufacturing process, to ensure that they conform to specification, in accordance with approved procedures. You will be expected to review specifications to determine checks needed at various stages of manufacture, to establish compliance by making those checks and to report and record any significant variances.

Your responsibilities will require you to comply with organisational policy and procedures for the post-production inspection and checking activities undertaken and to report any problems with the activities 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 the necessary checking and inspection procedures. You will know how to set up and use checking equipment effectively. You will understand the purpose of the checks and inspection points and their application and will know about the newly manufactured electronic products, in adequate depth to provide a sound basis for carrying out the activities, identifying faulty or out-of-specification components and taking the required action to correct this.

You will understand the safety precautions required when working in the electronic component-processing environment and with the associated inspection equipment. You will be expected to know about any hazards associated with such checks and what precautions to take to minimise the risks involved. 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 follow instructions and specifications for checking products or assets

P3 select and obtain the tools and inspection equipment and check that they are in useable condition

P4 conduct compliance checks using an appropriate sequence, using approved methods and procedures

P5 identify and assess any defects or variations from the specification and take appropriate action

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 obtain and use specifications for the compliance checks (component drawings, assembly drawings, block diagrams, wiring diagrams, manufacturing procedures)

K5 the importance of ensuring that tools and equipment are set up correctly and are in a safe and useable condition

K6 the procedure and methods used to check that tools and equipment are within calibration date

K7 how to use the range of equipment/items needed for the compliance checks

K8 the basic operating principles of the electronic components being checked

K9 the types of defects that can be found on electronic components and why they occur

K10 how to identify manufacturing defects and what to do to rectify them

K11 the factors to be considered when determining if a component should be scrapped or modified

K12 the quality control procedures to be followed when checking the electronic component

K13 the importance of ensuring that all tools and equipment are returned to their correct location on completion of the checking activities

K14 the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

K15 how to access, use and maintain information to comply with organisational requirements and legislation

Scope/range related to performance criteria

1. Carry out all of the following during the checking activities:
   1.1 use the correct issue of drawings, job instructions and specifications
   1.2 check the calibration dates of tools and measuring instruments to be used
   1.3 use grounded wrist straps and other electrostatic discharge (ESD) precautions, as appropriate
   1.4 use appropriate and safe inspection and checking techniques at all times
   1.5 create and store records of compliance checks, in accordance with appropriate procedures
   1.6 leave the work area in a safe and tidy condition
2. Check components using two of the following instruments:
   2.1 oscilloscope
   2.2 logic probe
   2.3 signal generator
   2.4 signal tracer
   2.5 multimeter
   2.6 automatic test equipment
   2.7 continuity tester
   2.8 measuring instrument or gauge
   2.9 other specific test equipment
3. Conduct compliance checks on one of the following types of components:
   3.1 capacitors (such as ceramic disc, multi-layer ceramic, surface mount, trimmer disc, connector filtering)
   3.2 resistors (such as oxide film, surface mount, wirewound)
   3.3 inductors (various types including surface mount)
   3.4 interconnection devices (such as edge connectors, test points, insulated chassis connectors)
   3.5 sensor devices (such as those used for process control and environmental monitoring applications)
   3.6 optical devices (such as optical fibre, optical waveguides, optical backplanes, optical interconnection)
   3.7 visual display screens (such as those used for PC screens)
   3.8 switching components (such as klystrons, thyratrons)
   3.9 microwave components (such as magnetrons, travelling wave tubes, other microwave components)
   3.10 spark gaps (such as those used in electromagnetic pulse surge protection and high energy switching applications)
   3.11 charge coupled devices (such as those used in image detection type applications)
   3.12 other type of components (specify)
4. Ensure the completed electronic components are within specification, using two of the following checks:
   4.1 fixed test
   4.2 under power
   4.3 fully operational

4.4 inspection

5. Check that electronic components comply with one of the following quality and accuracy standards:

5.1 current industry standards, codes of practice and procedures
5.2 company standards and procedures
5.3 customer standards and requirements
5.4 other international standard

SEMEEE315

Checking the compliance of electronic components

Developed by	Enginuity
Version Number	4
Date Approved	31 Mar 2026
Indicative Review Date	01 Apr 2029
Validity	Current
Status	Original
Originating Organisation	Enginuity
Original URN	SEMEEE3-15
Relevant Occupations	Engineering, Engineering and Manufacturing Technologies, Engineering Technicians, Maintenance Team Technician, Manufacturing Technologies, Production and Process Engineers
Suite	Electrical and Electronic Engineering Suite 3
Keywords	Engineering; electrical; electronic; check compliance; components; specification; inspection; testing; procedures