

Specification of Competency Standards
for the Testing, Inspection and Certification Industry
Unit of Competency

Functional Area - Testing Operations

Title	Perform electromagnetic compatibility (emission) tests
Code	105818L5
Range	This unit of competency (UoC) covers the abilities to carry out suitable emission and disturbance tests on electrical and electronic products independently and evaluate test results critically by applying the knowledge of electromagnetic compatibility in testing laboratories.
Level	5
Credit	8 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of electromagnetic compatibility and related emission tests</p> <ul style="list-style-type: none"> • Employ the principles of electromagnetic compatibility (EMC) and electromagnetic interferences (EMI). • Employ the principles of emission tests, e.g. conducted interference, radiated disturbance, harmonic current, voltage changes, fluctuation and flicker. • Explain the methods of measurements for emission tests. • Specify the requirements of emission tests related to selected electrical and electronic products. • Identify relevant categories of EMC standards, e.g.: <ul style="list-style-type: none"> ○ basic/generic standards, product family standards, ○ international, national and industrial standards such as IEC, CISPR, EN, ANSI, ETSI, GB, FCC, IEEE, AS/NZS. • Explain the principles and operation of instruments used for the emission tests, e.g. screened room quasi-peak measuring receivers, artificial mains network, impedance stabilisation network, absorbing clamp, flickermeter, requirement of normalised site attenuation. • Employ the basic mathematical concepts, e.g. decibel usage, linear scale, log scale, units in the measurement. • Apply the concepts of uncertainty and instrument calibration to the emission tests. <p>2. Perform electromagnetic compatibility (emission) tests</p> <ul style="list-style-type: none"> • Select appropriate test methods/standards, test plans, test conditions, accessories, loading and simulation of normal operations for emission tests. • Select appropriate testing instrument and test site for the measurements. • Apply appropriate conditions to the testing instrument, e.g.: <ul style="list-style-type: none"> ○ test voltage and angle between fundamental voltages of a three phase supply, ○ test duration and test observation period, ○ worst test configuration and worst mode with appropriate accessory, loading and simulator. • Apply appropriate conditions to the sample under test, e.g.: <ul style="list-style-type: none"> ○ normal operating conditions specified in product standards such as measurement circuit of single phase and three phase equipment, required simulation accessories, environmental conditions. • Carry out emission measurements independently for the established observation period according to the test methods/standards. • Carry out required validation checks to confirm the system and instrumental requirements such as site validation, differential voltages are met. • Record accurate test data, configuration and conditions, and evaluate test results critically by exercising appropriate judgement. <p>3. Exhibit professionalism</p>

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	<ul style="list-style-type: none">• Ensure all measurements are carried out in compliance with good industry practices and relevant categories of standards.• Ensure appropriate measures have been taken to minimise the health and safety risks of EMI arising from the test procedures and testing instrument.• Ensure all measurements comply with the uncertainty and calibration requirements for a testing laboratory.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none">• select and apply appropriate conditions to the testing instrument and the electrical and electronic product under the emission test ,• carry out the emission test independently and safely to record accurate data according to the requirements of relevant test methods/standards,• evaluate test results critically by exercising appropriate judgement to confirm the compliance of electromagnetic compatibility (emission) of the product against the relevant specifications of test methods/standards.
Remark	