

For technicians: Insulation resistance test

A leakage current test performed at rated voltage with values not exceeding 5mA for Class I appliances or 1mA for Class II appliances.

Alternatively, measure insulation resistance values are not less than 1M Ω for Class I and Class II appliances at 500 V d.c. or alternatively, to avoid the equipment apparently failing the test because the metal oxide varistors (MOVs), or electro-magnetic interference (EMI) suppression has triggered, for equipment containing voltage limiting devices such as MOVs, or EMI suppression, at 250 V d.c.

Leakage Current testing is performed using a PAT by applying a nominal voltage to the live conductors (active and neutral) of an appliance, and placing 0 volt reference on the earthed parts of a Class I appliance or the external metal parts of a Class II appliance;

- Nominal voltage is 230V AC. (therefore it can not be performed with a digital multimeter)

Insulation Resistance testing is performed using an ohmmeter or portable appliance tester by applying a nominal voltage to the live conductors (active and neutral) of an appliance, and placing 0 volt reference on the earthed parts of a Class I appliance or the external metal parts of a Class II appliance;

- Nominal voltage is 500V d.c (250 V d.c. may be used for equipment containing MOVs / EMI filtering)

A deficiency of the Insulation Resistance (500V/250V d.c) test is that the d.c voltage will not activate electromagnetic switches or internal relays etc. that are common in many modern power tools, computers, TVs etc. and therefore it can only test the appliance up to that point. Appliances with these components / design should be tested used the leakage current test.

[source - "Wikipedia - Test and Tagging"](#)

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