

Parallel Earth Paths

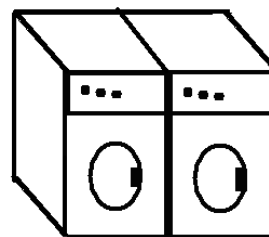
When portable appliance testing, it is important to ensure that a good earth connection is present on class 1 equipment. Sometimes it is possible to come across appliances with parallel earth connections. This means that there is another path to the earth system other than through the appliance plug.

Parallel paths can be present in a number of situations:

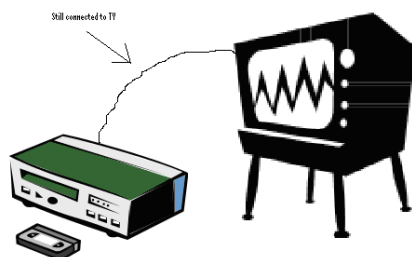
- Testing a monitor when it is still attached to a PC



- An appliance with a metal case touching the earthed metal case of another appliance, for example, fryers or washing machines.



- Testing a video player when still attached to a television set



- An appliance on an earthed counter (this can be common in commercial kitchens)



Parallel paths need to be checked to ensure the appliance is earthed properly. If the appliance in question is moved away from the other earth path, it is possible no earthing would exist and could become dangerous if a fault was to occur.

Occasionally there could be an application where the parallel earth path cannot be removed and the earth cannot be isolated. In this situation, an earth path should be determined by performing an earth bond test. A differential leakage test should also be performed to ensure the insulation is in good condition.

Megger PAT testers have the ability to detect parallel earth paths making testing easier. Below is the range of PAT testers available from Megger.

		PAT320	PAT350	PAT410	PAT420	PAT450
Supply	230 V	■	■	■	■	■
	110 V		■		■	■
	Supply measurement	■	■	■	■	■
Earth bond / continuity	200 mA	■	■	■	■	■
	10 A		■		■	■
	25 A		■		■	■
	Bond lead null	■	■	■	■	■
Insulation test	250 V	■	■	■	■	■
	500 V	■	■	■	■	■
Functional test	VA measurement	■	■	■	■	■
Extension lead tests	Earth bond	■	■	■	■	■
	Insulation	■	■	■	■	■
	Polarity	■	■	■	■	■
Portable 30 mA RCD test	1/2 I	■	■	■	■	■
	I	■	■	■	■	■
	5 I	■	■	■	■	■
Earth leakage tests	Substitute	■	■	■	■	■
	Differential	■	■	■	■	■
	Touch current	■	■	■	■	■
Flash test	1.5 kV		■			■
	3.0 kV		■			■
Other features	Low weight, low profile	■		■		
	110 V test connection					
	Auto test routine	■	■	■	■	■
	Manual testing	■	■	■	■	■
	Configurable test times	■	■	■	■	■
	Selectable pass limits	■	■	■	■	■
	Fuse check	■	■	■	■	■
Display	Colour 1/8 VGA	■	■			
	Colour 1/4 VGA			■	■	■
Data handling	10,000 record on-board storage			■	■	■
	Download to USB memory stick			■	■	■
	PowerSuite compatible			■	■	■
Supplied accessories	Carry case with lead storage pouch	■	■	■	■	■
	Combined continuity, earth bond and insulation test lead	■	■	■	■	■
	Extension lead adaptor test lead	■	■	■	■	■
	Flash test lead		■			■
	Calibration certificate	■	■	■	■	■