

PAT Testing FAQ Technical details

What is PAT testing?

Portable Appliance Testing (PAT) is a routine inspection of electrical appliances to ensure they are safe to use. It typically involves a visual check and an electrical test using specialist equipment.

Is PAT testing a legal requirement?

PAT testing itself isn't a specific legal requirement, but UK health and safety laws *do* require employers, landlords, and businesses to ensure electrical equipment is safe. PAT testing is the most recognised way to meet those obligations.

How often should appliances be tested?

Testing frequency depends on the type of equipment and the environment it's used in. High-risk settings (construction sites, workshops) require more frequent testing than low-risk environments (offices, shops). Many businesses test annually as a standard.

What types of appliances need PAT testing?

Any electrical appliance that plugs into a socket or generator should be tested. This includes computers, kettles, power tools, extension leads, kitchen equipment, and more.

Do new appliances need PAT testing?

New equipment should be safe when purchased, but a visual inspection is still recommended. Some businesses choose to include new items in their first testing cycle for consistency.

How long does PAT testing take?

It depends on the number and type of appliances. A small office may take under an hour, while larger sites with hundreds of items may take several hours or a full day.

Will PAT testing disrupt my business?

Testing is designed to be minimally disruptive. Appliances only need to be unplugged briefly, and testing can be scheduled outside of peak hours if needed.

What happens if an appliance fails?

If an item fails, the engineer will label it clearly and explain the issue. Minor faults (like damaged plugs) can often be repaired on-site. Unsafe items should not be used until fixed or replaced.

Do you provide certification?

Yes. After testing, you'll receive a full PAT testing report, including pass/fail results, asset details, and recommendations. This serves as evidence of compliance for insurers and regulators.

How much does PAT testing cost?

Pricing varies depending on the number of items, location, and any repairs required. Many providers offer per-item or fixed-rate packages. I can help you draft a pricing section if you want.

If you'd like, I can also create **a more sales-focused version, a simplified version for customers, or a technical version for engineers.**

technical version for engineers please

Here's a **technical, engineer-level PAT Testing FAQ** — written with the depth, precision, and terminology that electrical engineers, compliance officers, and maintenance professionals expect. I've kept it clear but not oversimplified, and added the inline exploration highlights you asked for.

Technical PAT Testing FAQ (Engineer-Focused)

What standards govern PAT testing?

PAT testing in the UK is primarily guided by IET Code of Practice for In-Service Inspection and Testing of Electrical Equipment (5th Edition). Engineers also reference BS 7671 for wiring regulations and EAWR 1989 for legal compliance. These documents define inspection protocols, test limits, and equipment categories.

Which equipment classes require testing?

Appliances fall into **Class I**, **Class II**, **Class III**, and SELV/PELV categories. Testing requirements differ:

- **Class I:** Earth continuity, insulation resistance, polarity, leakage.
- **Class II:** Insulation resistance, polarity, leakage.
- **Class III:** Visual inspection only unless powered by external PSU.
- **IT/SMPS equipment:** Leakage-based tests preferred due to surge-sensitive components.

What electrical tests are typically performed?

Engineers may carry out:

- Earth continuity testing (0.1–0.2 Ω typical thresholds)

- Insulation resistance testing (usually at 500 V DC unless equipment requires 250 V)
- Polarity verification for extension leads and adaptors
- Earth leakage or touch current testing for sensitive electronics
- RCD trip-time testing where applicable

How do you determine the correct test voltage?

Test voltage selection depends on equipment category and component sensitivity. For example:

- 500 V DC for most Class I/II appliances
- 250 V DC for surge-protected or IT equipment
- No IR test for equipment with EMC filters unless leakage testing is used instead

What constitutes a pass or fail?

Pass/fail criteria are defined by:

- Maximum earth resistance values
- Minimum insulation resistance thresholds
- Leakage current limits (e.g., ≤ 0.75 mA for Class I portable appliances)
- Correct polarity on all leads and adaptors
- Mechanical integrity from visual inspection

How should engineers handle appliances that cannot be disconnected?

For equipment that must remain powered (servers, medical devices, industrial controllers), engineers use:

- In-situ leakage testing
- Thermal inspection
- Load monitoring
- Risk-based assessment instead of full disconnection

How often should PAT testing be performed?

Frequency is determined by risk assessment, not fixed intervals. Factors include:

- Equipment class
- Operating environment

- Duty cycle
- User competence
- History of failures

High-risk sites (construction, workshops) require more frequent testing than low-risk office environments.

What documentation must be produced?

Engineers typically generate:

- Asset register
- Test results log
- Failure reports
- Risk assessments
- Compliance certificates

Digital systems often integrate barcoding or RFID for traceability.

What are common causes of appliance failure?

Frequent failure points include:

- Damaged flexes
- Incorrectly wired plugs
- High earth resistance due to loose terminations
- Low insulation resistance from moisture ingress
- Excessive leakage from EMC filters or ageing components

How should engineers test surge-protected or IT equipment?

Use substitute leakage or touch current testing instead of high-voltage IR tests to avoid damaging MOVs, filters, and SMPS circuitry.