

Testing and certificating in

Bill Allan
explains the
best way to
go about the
job and
what's
expected in
Part 6 of the
NAPIT
Electrical
Installation
Certificate



Questions can arise over the testing and certification requirements for remote distribution boards – for example, 2-way boards, commonly installed in detached garages. Part 6 of the *NAPIT Electrical Installation Certificate* is intended for such remote boards and in this feature I will guide you on how to complete it.

A typical example

In order to explain how to complete Part 6, it's probably best to consider a specific example. Fig. 1 shows a typical remote distribution board. It's a 2-way consumer unit in a detached summerhouse with a miniature circuit breaker for the lighting circuit and another for the socket-outlet circuit.

It's supplied from a 40A mcb in the main consumer unit of the house. The sub-main cable is 3 core 6mm². I'll assume in this example that the electrical contractor has installed the sub-main cable and the circuits within the summerhouse.

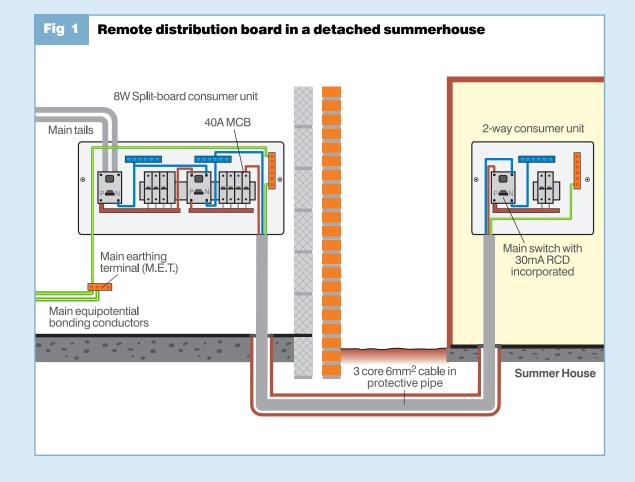
Part 6 of the NAPIT Electrical Installation Certificate is reproduced below right. It has been completed using typical figures for this type of installation.

Complete in every case

The section, "Complete in every case", is to be tackled whether the remote DB is connected directly to the origin of the installation or not. If the consumer unit in the house, shown in Fig. 1, had been full, then the supply to the summerhouse could have been provided using double-pole connector blocks. In that situation, it would only be necessary to complete the section marked, "Complete in every case". The remainder of Part 6 would be left blank or marked N/A for non applicable.

"Complete only if the distribution board is not connected directly to the origin of the installation"

This section is divided into two parts. If we refer again to Fig. 1, then the first part requires information regarding the main consumer unit in the house. The second part of the section concerns the characteristics at the consumer unit in the summerhouse. Notice that values of $Z_{\rm e}$ and the prospective fault current lpf are required.



ng remote distribution boards

Tests on sub-main cable

Tests which must be carried out on the sub-main cable are the continuity of the protective conductor and the insulation resistance.

Measuring Z_e

The term $Z_{\rm e}$ refers to the external fault loop impedance at the origin of the installation. The measurement between the phase conductor and the protective conductor at the remote board is the earth fault loop impedance path, $Z_{\rm S}$, at that particular distribution board. The connection to Earth at the remote board is, of course, via the main earthing terminal in the house.

It is appreciated that the use of the term $Z_{\rm e}$ at this point may cause some confusion, so it is important to emphasise that neither the main earthing conductor nor the main bonding conductors should be disconnected from the MET in the house.

Measuring Ipf

Regulation 713-12-01 requires that the prospective short-circuit current and the prospective earth fault current be determined, not only at the origin of the installation, but also at other relevant points in the installation. A relevant point is a point where a

protective device, required to operate under fault conditions, has been installed.

The remote consumer unit in the summerhouse is one such relevant point. It is necessary to know that the breaking capacity of each overcurrent protective device is not less than the prospective short-circuit current or the prospective earth fault current at the point at which it is installed.

Section 434 of BS 7671 should be consulted for further details. The term, prospective fault current, includes the prospective short-circuit current and the prospective earth fault current. It is the greater of these two values which must be compared with the breaking capacity of the protective device and recorded on the certificate.

Test instrument number

The final section of Part 6 requires that the number of the test instruments used to carry out these tests is recorded.

Part 7 – circuit details and test results

The circuit details and test results for the circuits within the summerhouse must be recorded in the additional test sheet as Circuits 1 and 2 as shown below.

Conclusion

It is hoped that this feature has cleared up any misunderstandings regarding Part 6 of the NAPIT Electrical Installation Certificate. Guidance on the testing of Ze and lpf is given in the feature, "How to avoid mistakes on supply parameters", in issue number 5, 2007, of The Competent Person



