

Australian Standard[®]

Automatic fire detection and alarm systems—Methods of test for actuating devices

Method 9: High frequency disturbance test

1 SCOPE. This Standard sets out the method of testing to determine the susceptibility of an actuating device to high frequency transients. (See performance requirements in the appropriate device Standard.)

2 REFERENCED DOCUMENTS. The following document is referred to in this Standard:

AS

2481 All-or-nothing electrical relays (instantaneous and timing relays)

3 PRINCIPLE. The energized actuating device is subjected to stipulated high frequency transients while connected to monitoring equipment to assess its capability to withstand without damage, such transients.

4 APPARATUS. High frequency generators and coupling circuits are required in accordance with AS 2481.

5 TEST CIRCUIT CHARACTERISTICS. The disturbance signal shall have the following characteristics:

- (a) *Waveform*—A damped oscillatory wave with the envelope decaying to 50% of peak value at the end of three to six cycles.
- (b) *Frequency*—1 MHz $\pm 10\%$.
- (c) *Source impedance*—200 Ω $\pm 10\%$.
- (d) *Repetition rate*—400/s $\pm 10\%$.
- (e) *Peak voltage*—Transverse mode—0.5 kV.
Longitudinal mode (where applicable)—1.0 kV.

NOTE: These are open-circuit voltages at the output of the test circuit, before the actuating device to be tested is connected.

- (f) *Voltage tolerance*—+0, -10%.
- (g) *Generator circuit*—See AS 2481, Appendix D.
- (h) *Test leads*—Each test lead shall be not greater than 2.0 m in length, and, unless efficient coupling from the generator to the actuating device can be proven, must be as short and direct as practicable. The lead between the monitoring equipment or other devices where applicable and the coupling unit shall be 10 m long of the least capacitive cable that is intended to be used.

6 PROCEDURE. The procedure shall be as follows:

- (a) Mount the actuating device on a 300 mm x 300 mm flat brass or copper plate.
- (b) Apply the test to the actuating device which is connected to monitoring equipment via a coupling arrangement of capacitors as detailed in Figure 1. Energize the actuating device during the test.
- (c) Set the ambient temperature to between 15°C and 35°C.
- (d) Apply the test voltage of 0.5 kV in a transverse mode between each pair of terminals of the actuating device. (See Figure 1(a).)
- (e) Apply a longitudinal test voltage of 1.0 kV between all the terminals and the plate (see Figure 1(b)).
- (f) Apply each test for a period of 2 s and note the effect.