10.1 Surge test

The insulation on CLASS II apparatus between ACCESSIBLE parts or parts connected to them and HAZARDOUS LIVE parts, shall withstand surges due to transients, caused for example by thunderstorms and entering the apparatus through the antenna TERMINAL.

Compliance is checked by the following test:

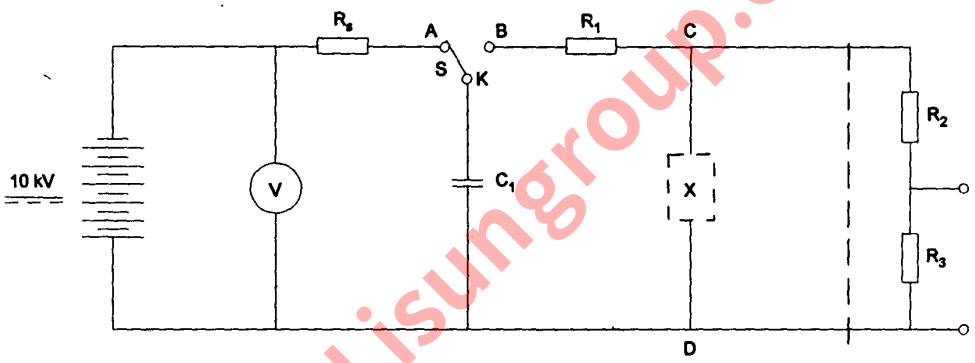
The insulation between

- *TERMINALS for the connection of antenna and MAINS supply TERMINALS,*

and between

- *MAINS supply TERMINALS and any other TERMINAL in case of apparatus providing supply voltages to other apparatus with antenna TERMINALS,*

is subjected to 50 discharges at a maximum rate of 12/min, from a 1 nF capacitor charged to 10 kV in a test circuit, as shown in Figure 5a.



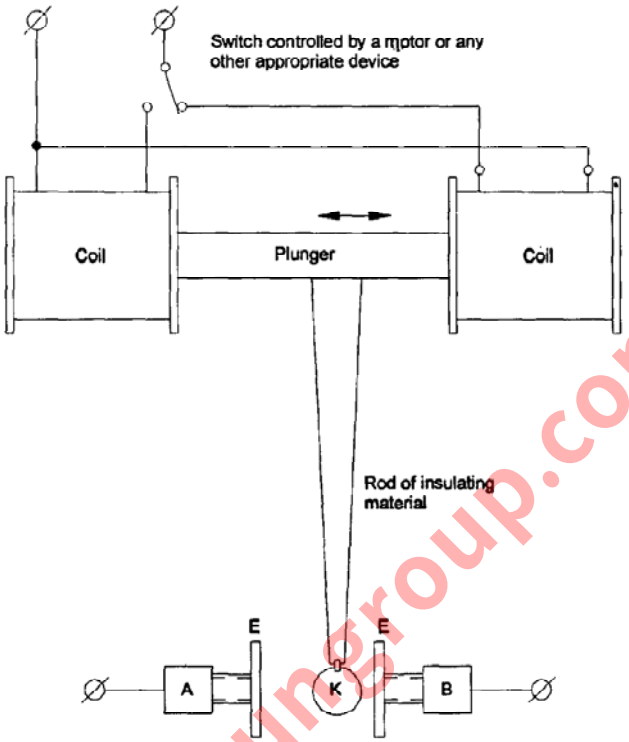
C_1 = 1 nF R_1 = 1 kΩ R_2 = 100 MΩ R_3 = 0,1 MΩ R_s = 15 MΩ

The switch S is a critical part of the circuit. It shall be so designed that as little as possible of the available energy is dissipated in arcing or inadequate insulation. An example of such a switch is given in Figure 5b.

The component X under test is connected to the terminals C and D. Optionally the voltage divider R_2, R_3 may be provided so that an oscilloscope connected across R_3 permits the observation of the voltage waveform across the component under test. This voltage divider is compensated so that the observed waveform corresponds with that across the component under test.

NOTE See 10.1 and 14.1.

Figure 5a – Surge test – Test circuit



The switch (S in Figure 5a) comprises the following parts:

- the brass pillars A and B support circular electrodes E spaced at a distance of 15 mm;
- K is a brass sphere of 7 mm diameter and is supported on a rigid rod of insulating material approximately 150 mm long.

A, B and K are connected as shown in Figure 5a, K by means of a flexible wire.

Care shall be taken to avoid bouncing of sphere K.

Figure 5b – Surge test – Example of a switch to be used in the test circuit