5.1All tests are type tests.

5.2The input terminals at which tests on the equipment are to be applied should be identified by the manufacturer and labelled A, B ....

5.3The equipment may be enclosed in a foil shroud which is connected to the earth terminal (if it is provided), when tests are made under §§ 7 and 9.
5.4The equipment should be tested in each operating mode of significant duration.

5.5The equipment should pass tests under §§ 7 and 9 throughout the ranges of temperature and humidity of its intended use.

5.6In all cases where a maximum voltage is specified, tests shall also be made at lower voltages if it is necessary to confirm that the equipment will resist any voltage up to the maximum specified.

6.Test compliance

Equipment shall withstand all tests without damage or other disturbance, e.g., corruption of software, misoperation or fault-protection facilities, and shall operate properly within specified limits after the tests. It is not required to operate correctly while the test condition is present. If specifically permitted by an administration, the tests may cause the operation of fuses or other devices which have to be replaced or reset before normal operation is restored.

7.Surge tests

7.1Test circuits

Three alternative test circuits may be used:

- a surge generator of 1.2/50 µs open-circuit voltage waveshape and 8/20 µs short-circuit current waveshape;

- a surge generator providing a 2/10 µs open-circuit voltage waveshape and short-circuit current waveshape;

- a surge generator of 1.2/50 µs open-circuit voltage waveshape and corresponding short-circuit current waveshape. Figure 1 illustrates a typical test circuit.

The short-circuit current provided by the surge generator shall be approximately 100 amps.

Recommendation K.22

OVERVOLTAGE RESISTIBILITY OF EQUIPMENT CONNECTED TO AN ISDN T/S BUS

1.General

This Recommendation seeks to establish fundamental testing methods and criteria for the resistibility of telecommunication equipment connected to an internal ISDN T/S bus.

Recommendation K.21 should be followed when assessing the resistibility of equipment to be connected directly to a telecommunication network.

2.Scope

The Recommendation relates to any terminal equipment which is intended to be connected to the 4-wire T/S bus of an ISDN installation. It presumes that suitable isolation is provided between the telecommunication network and the T/S bus at the network termination. It is also assumed that the S-bus has no connection to earth e.g. no earth-connected voltage-limiting devices with non- linear characteristics can be used. In cases where these assumptions cannot be made, Recommendation K.21 should be followed.

3.Overvoltage and overcurrent conditions

Aspects of overvoltage or overcurrent covered by this Recommendation are:

- surges due to lightning strokes on telecommunication lines or to the building housing the equipment;

- electrostatic discharges generated by users touching the equipment or adjacent plant;

- lightning transient surges on mains - voltage power supplies to the equipment.

4.Equipment boundary

Variations in equipment make it necessary for each unit to be seen as a "black-box" having three or more terminals, A, B ... etc. Some protective devices may have already been provided within the equipment, e.g., distributed on cards, or connected to internal terminals. For the purpose of these tests manufacturers are expected to define the boundaries of the "black-box" and any protective device which is thereby included must be considered an immutable part of the equipment.

5.Test conditions

The following general conditions apply: