

ANSI/HPS N43.6-1997

7.4 Impact test²⁾**7.4.1 Equipment.** This comprises:

- (1) A free-falling steel hammer which has a flat striking surface 25 mm in diameter with the edge rounded to a radius of 3 mm. The center of gravity of the hammer lies on the axis of the circle, which defines the striking surface.
- (2) A steel anvil, the mass of which is at least 10 times that of the hammer. It is rigidly mounted so that it does not deflect during impact. It has a flat surface, large enough to take the whole of the source.
- (3) For the class 2 drop test, the steel plate shall be rigidly mounted so that it will not deflect appreciably during the test.

7.4.2 Procedure. Choose the mass of the hammer according to the mass specified in table 1.

Adjust the drop height to 1 m as measured between the top of the source positioned on the anvil and the base of the hammer in the release position.

Position the source so that it offers its most vulnerable area to the hammer.

Drop the hammer onto the source.

7.4.3 Drop test. For the class 2 drop test, the test sources shall be dropped so that all surfaces are impacted at least once.

7.4.4 Evaluation. Test sources shall be examined visually and subjected to an appropriate integrity test such as described in annex A.

²⁾ This test is similar in principle to the percussion test given in IAEA regulations for the safe transport of radioactive materials.

7.5 Vibration test

7.5.1 Equipment. A vibrating machine capable of producing the specified test conditions.

7.5.2 Procedure. Fix the source securely to the platform of the vibrating machine so that at all times the source will be rigidly in contact with the platform.

For classes 2 and 3, subject the source to the three complete test cycles for each condition specified. Conduct the test by sweeping through all frequencies in the range at a uniform rate from the minimum frequency to the maximum frequency, and return to the minimum frequency in 10 minutes or longer. Test each axis³⁾ of the source. A maximum of three axes shall be used. In addition, continue to test for 30 minutes at each resonance frequency found.

For class 4, subject the source to three complete test cycles for each condition specified. Conduct the test by sweeping through all the frequencies in the range at a uniform rate from the minimum frequency, and return to the minimum frequency in 30 minutes or longer. Test each axis³⁾ of the source. A maximum of three axes shall be used. In addition, continue the test for 30 minutes at each resonance frequency found.

7.5.3 Evaluation. Test sources shall be examined visually and subjected to an appropriate integrity test such as described in annex A.

³⁾ A spherical source has one axis taken at random. A source with an oval or disc-type cross-section has two axes: one of revolution and one taken at random in a plane perpendicular to the axis of revolution. Other sources have three axes taken parallel to the significant overall dimensions.