

CTL DECISION SHEET

Standard(s): IEC60065/2001 IEC61010-1/2001	Subclause(s): 9.1.6 6.10.3	No. DSH 0753	Year 2009
Category: TRON, MEAS		Developed by: WG4, ETF2, ETF3	
Subject: Capacitor discharge voltage measurement	Key words: - Plug discharge - Capacitor discharge - Shock hazard	Approved at the 47th CTL Plenary Meeting, year 2010	

Question:

The standards referenced include a test commonly referred to as a plug discharge or capacitor discharge test that involves disconnecting the product under test from the mains and measuring the residual voltage across a capacitor(s) at a specified time. The intent in each of the referenced standards is the same – measure the maximum voltage obtainable at the time specified.

(1) Each standard has a slightly different description of how the mains disconnect is made, but the intent is to disconnect at the highest voltage possible in the AC power cycle. With the advent of electronic voltage sensing switches, it is possible to disconnect at the peak voltage in the AC cycle. Using this procedure seems to be within the intent of the standards and would result in more consistent and repeatable results. Is it acceptable to perform the test this way?

(2) Good laboratory practice dictates that the voltage should be measured with a high input impedance voltmeter. For this test, some standards require the use of a voltmeter with an input resistance of $100\text{ M}\Omega \pm 5\text{ M}\Omega$ in parallel with an input capacitance of 25 pF or less. For more consistent and repeatable results should this type of meter always be used for this type of test?

Decision:

(1) Yes, this method should always be used for these tests within the CB Scheme.

(2) Yes, a meter with the stated input impedance should always be used for these tests within the CB Scheme.

Explanatory Notes:

Results of CTL proficiency testing programs show that while the objective of the test is the same, the lack of consistent test method in the standards results in unnecessary inconsistency and lack of repeatability in performance of the tests. The CTL experts for the standards agreed to common practices as the practices were within the intent of the standards and result in more consistent and repeatable results.