

CTL PROVISIONAL DECISION SHEET

<u>Standards:</u> IEC 60950-1:2001 <u>IEC 60950-1:2005</u>	<u>Sub clause:</u> 2.4	No.	Year
		755	2009
		Developed by ETF 2 Question 69	
<u>Subject:</u> measurement frequency of Limited Current Circuits (LCCs) capacitance	<u>Key words:</u> - LCC - circuit capacitance - measurement frequency	To be approved at the 47th CTL Plenary meeting in 2010	
<p><u>Question:</u></p> <p>When measuring the circuit capacitance according to clause 2.4, what frequency should be used, 1kHz, the measured frequency of the circuit or another frequency?</p> <p>Proposal:</p> <p>For frequencies not exceeding 1kHz, the circuit capacitance shall be measured at a frequency of 1kHz.</p> <p>For frequencies above 1kHz, the circuit capacitance shall be measured under the actual circuit frequency or the nearest frequency point of the measuring equipment.</p> <p>Decision:</p> <p>LCC limit values per 2.4.2 typically are applied to two different types of circuits, those providing:</p> <p>(a) steady state current, or (b) capacitively driven current.</p> <p>In a single product, one or multiple measurements may be required based on the type of individual circuits involved.</p> <ul style="list-style-type: none"> • For circuits with steady state current of a single frequency, a measurement through a 2000 ohm resistor is conducted. There is no capacitance determination. • For circuits with steady state current of multiple/complex frequencies, a measurement using one of the measurement instruments of Annex D is conducted. There is no capacitance determination. • For a circuit with a capacitance driven current, such as found in a lamp driver circuit, where the current typically is driven by a ‘single’ capacitor, the circuit 			

capacitance can be determined via either the marked nominal capacitor rating or measurement of the single capacitor via LCR measurement equipment. For circuits that have capacitance driven currents, there are no additional current measurements. It is purely a capacitance determination or measurement, with maximum capacitance defined per 2.4.2, based on the maximum Working Voltage of the circuit.

Explanatory Notes:

The methodology stated above also will be included in IEC 62368, but in a different form.

We also understand that most widely and commonly available LCR equipment is not intended to measure complex circuits/networks consisting of multiple L, C & R components in the same network. The equipment is designed to measure individual L, C or R components. Regardless, it is our contention that such measurements of complex circuits by LCR measuring equipment are not required by 2.4.2 of IEC 60950-1.