

## 2010-05-20: OP-100 FAQ by Ron Vaickauski (Underwriters Laboratories, Inc.)

As convener of CTL WG1, I occasionally receive telephone calls or emails asking basic questions about CTL-OP-110. These questions typically are asked by either CB Assessors or CB test laboratories. I thought it might be useful to review some of the most commonly asked questions as a supplement to the CTL WG1 report presented at the 46th CTL meeting.

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Question 1 - Do the requirements in CTL-OP-110 apply to laboratory power sources that are used to supply power for purposes other than powering equipment under test?

Answer 1 - No, CTL-OP-110 applies only to laboratory power sources supplying power to equipment under test. CTL-OP-110 does not apply to laboratory "house power", that is power sources used to power instruments, ambient chambers, lights and the like.

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Question 2 - Do the requirements apply to DC power sources used to supply power to DC rated electrical equipment under test?

Answer 2 - No, CTL-OP-110 applies only to laboratory power sources used to supply test power to products that when used are connected to ordinary branch circuits found in residences and businesses - for example 120 V, 15 and 20 A; 240 V, 15 A circuits in North America and 230 V, 10 and 15 A branch circuits in Europe.

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Question 3 - Do the requirements apply to testing of photovoltaic arrays?

Answer 3 - No, photovoltaic arrays generate their own power. CTL-OP-110 applies only to laboratory power sources used to supply test power to products that when used are connected to ordinary branch circuits found in residences and businesses - for example 120 V, 15 and 20 A; 240 V, 15 A circuits in North America and 230 V, 10 and 15 A branch circuits in Europe. The requirements do apply to testing of auxiliary equipment used with photovoltaic arrays if the auxiliary equipment in used is connected to the branch circuits cited.

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Question 4 - Clause 9.1.1 reads, "Characteristics of electrical power sources representing electrical mains connections used in the testing laboratory shall be measured at the point where tests are performed. Typically, this point is considered to be the receptacle or wiring terminals where the test setup is connected." There are general three types of arrangements for AC power regulators used for laboratory test power:

- (a) central regulator with power distributed to test stations by branch circuit wiring.
- (b) regulator located at test station with product under test either connected directly to the regulator output or connected to the regulator through a receptacle or terminals on the test station in turn connected to the regulator through a short distance of adequately sized wiring.
- (c) mobile regulators moved to test locations in the laboratory where needed with product under test either connected directly to the regulator output or connected to the regulator through a receptacle or terminals connected to the regulator through short distance of adequately sized wiring.

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Answer 4 - The power source shall be tested:

- (a) at the point on the test station where the product under test is connected.
- (b) at the test station connected to the regulator, the receptacle or terminals, as the short distance of wiring to the regulator is of no consequence to the results.
- (c) at the regulator output, the receptacle or terminals, as the short distance of wiring to the regulator is of no consequence to the results.

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Question 5 - If a power regulators performance specifications are verified by an accredited calibration laboratory and the specifications for voltage stability, frequency stability and total harmonic distortion comply with the requirements of CTL-OP-110, is it necessary to perform the testing in section 9 of CTL-OP-110 again in the laboratory when used under the conditions question 4 items (b) and (c).

Answer 5 - It is not necessary to perform the testing in section 9 as long as the power regulator is used within its specifications. The regulator, if used under the condition of question 4 item (a) would need to be tested because the longer distance of wiring could affect conformance with the specifications.

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