



## Questions and Answers Regarding Testing Procedures for ENERGY STAR<sup>®</sup> Labeled Consumer Electronics Products

**Q: Where can I find AC Power Source Equipment?**

A: An AC Power Source can be ordered from several manufacturers, including Pacific Power, California Instruments, Elgar, and Kikusui.

**Q: Where can I find a true watt meter that will meet my requirements?**

A: A true watt meter can be ordered from several manufacturers. The EEM catalogue lists approximately 75 companies under "Meters, Watt." Perhaps only one-third of these companies makes meters suitable for ENERGY STAR measurement. Manufacturers carrying watt meters that may be appropriate include AEMC, Clarke-Hess, NGI-Norma, Ohio Semitronic, Valhalla, Voltech, and Yokogawa. When contacting these manufacturers, please indicate how the equipment will be used and request specification sheets. (As you find adequate meters, please let ENERGY STAR know so we can share this information with other partners.)

**Q: Can I send my products to an outside laboratory for testing?**

A: Yes. ENERGY STAR allows manufacturers to submit products to an outside laboratory for qualification testing. A good test lab should be aware of the issues surrounding power measurement for electronic devices, but do not assume this is the case. You will probably want to offer the testing lab copies of the Test Criteria, which is included in the ENERGY STAR Program Requirements (Eligibility Criteria).

**Q: Can I assume that the voltage coming out of my wall socket is close to 115 V?**

A: While your wall socket voltage may be acceptable, do not assume that it is. The voltage coming out the wall could easily vary by more than  $\pm 5$  V from the suggested 115 Volts AC.

**Q: If I do not have access to an AC power source, what else can I do to get an acceptable AC power source for testing?**

A: If the THD and frequency are acceptable, you can use a low cost autotransformer to adjust the line voltage to the correct value. If you also need to correct the THD, you can use a "resonant" line voltage regulator between the wall outlet and the device under test. The input voltage can then be regulated to  $115 \text{ V} \pm 3\text{V}$ .

**Q: Will the voltage coming out of the wall have a harmonic distortion less than 5 percent THD?**

A: Not always. You can use an AC power source to correct the THD. Alternatively, a "resonant" line voltage regulator will help regulate distortion to within 3 percent, thereby achieving less than 5 percent necessary for the test conditions. Before you use a resonant transformer, make sure that it can handle the peak currents while still maintaining the voltage, frequency, and THD limits of the specification.

**Q: Are these testing requirements mandatory?**

A: These testing requirements are not mandatory, but stringency in testing is to your firm's advantage. It can help protect you from accusations of non-qualification by your competitors or others. The stringency and accuracy of your own testing may be determined on the basis of your specific product. For example, if your product measures well below the ENERGY STAR specifications with a sufficient margin to account for any accuracy errors, the accuracy and frequency of the tests will not be as critical. However, if your product measures close to the ENERGY STAR specifications, it is best to follow these guidelines as strictly as possible. A model may qualify for ENERGY STAR if testing indicates that 95 percent of the units sold under this model will meet the specifications presented in the ENERGY STAR Program Requirements (Eligibility Criteria).