



EUROPEAN POWER SUPPLIES MANUFACTURERS' ASSOCIATION

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# *Accurate Efficiency Measurements*

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## ABSTRACT

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## ABSTRACT

This white paper gives information and guidance about the measurement of efficiency of power supply equipment.

As efficiencies get closer to 100%, accuracy of measurement becomes critical to obtain accurate values for efficiency and loss. A +/-5% error in measurement of input power for a 1kW output converter operating at 95% expected efficiency for example gives a spread of indicated losses of 105W to 2.5W where the actual figure is 52.6W!

The white paper explains sources of measurement error particularly for AC inputs, single and three-phase and ways to minimize that error. Environmental factors such as altitude, humidity and temperature are discussed.

Measurement equipment and its setup is described in detail with the effects of digital sampling analyzed.

The 'calorimetric' method is discussed where measurement of actual heat energy produced promises a much more accurate indication of efficiency.

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