
Subject: Re: PS Transformers

Posted by [Damir](#) on Sat, 29 Jul 2006 14:52:16 GMT

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Well, the formulae is expressed with turns ratio - the number of turns (N_p and N_s) are unchanging constant, both in ideal and real transformer. In ideal PT, turns ratio (N_s/N_p) is equal to the voltage ratio (U_s/U_p); the real transformer is a little more complicated. But, for our purposes (usually we don't know N_p and N_s), measured "off-load" voltages and their ratio (U_s/U_p) is equal to the turns ratio. Note that "step-up" transformation "adds" R_p to the secondary multiplied with square of the turns ratio - with higher U_s (and higher voltage/turns ratio) R_t is purely dominated by R_p and not with R_s ! For example, we have 550-0-550V PT needed for LC supply (and "targeted" 430V DC)... say, our R_s is only 5 Ohms...but we must add $(U_s/U_p)^2 * R_p$, and $(550/117)^2 * R_p = 22 * R_p$. It means that every Ohm of the primary DCR is 22 Ohms "transformed" to the secondary side.
