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# TSC Ferrite International

## Test Instrumentation & Methods

### Core Loss

Published values of core loss have been measured on E21 size (41-16-12) double E cores. The cores are driven with an ENI Model 2100L RF Amplifier and measured using Clarke-Hess Model 2335 VAW meters under sine wave conditions. Flux densities were calculated using rms voltage values and effective core set parameters calculated per MMPA standard No. EUI310. Core loss density was calculated per the same standard. These curves are applicable to all sizes and configurations as long as the correct effective core set parameters are assumed. Data and graphical curves of core loss vs. temperature measured on ungapped core sets are included for each kiln firing and lot with each shipment of our products.

### Initial Permeability

Published values of initial permeability have been calculated from measured inductance values at 5 gauss on toroids (OD=.870, ID=.540, HT=.250) using Wayne-Kerr model 6425 or model 3245 LCR meters. Flux density and permeability were both calculated using effective core set parameters (Le, Ae and Ve) calculated per MMPA Toroid Standard No. FTC410.

### Power Permeability

(Permeability vs. Flux Density)

Published values of Power Permeability have been calculated from measured values of rms currents and voltages on 25-10-06 size double E cores using Clarke-Hess model 2335 VAW meters.

$$\mu = (L / L_{air}) = ((0.45 * E_{rms}) / (f * I_{rms} * 2.829)) / ((0.004 * \pi * A_e * 10^{-6}) / L_e)$$

### Saturation Flux Density

Published values of saturation flux density have been calculated from integrated voltage measurements on 25-10-06 size double E cores induced by a specific magnetizing force (15 oersteds).

### Inductance Index (AL Value)

Published AL Values were measured on Wayne-Kerr model 6425 or model 3245 LCR meters using 100 turn coils. Mated cores have a clamp pressure of approximately 5 pounds per square inch of mating surface. Statistical data including a histogram and capability indexes of the AL value on gapped and ungapped core sets are included with each shipment of our products.

### Total Harmonic Distortion

We measure harmonic distortion on an Audio Precision System Two (SYS-2022) in accordance to our customer's part specific specification. The test circuit primary series resistance, output load resistance, frequency and drive level in Db, Vrms or Vpp are specified by our customers.