Where $\mu 1$ = permeability at T1℃ 在T1℃的導磁率
$\mu 2$ = permeability at T2℃ 在T2℃的導磁率

$$\alpha\mu = \frac{\mu 2 - \mu 1}{\mu 1} \cdot \frac{1}{T1-T2} \quad (T2 > T1)$$

■Flux Density, Residual Flux Density, Coercive Force & Amplitude Permeability
（磁通密度，殘磁密度，嬌頑磁力＆波幅導磁率）

There are four intrinsic material parameters that can be determined from the B-H loop measurement. The core under test is used as a transformer and the relationship between winding current (H) and secondary winding integrated voltage (B) is measured. This relationship is displayed using the " X versus Y " display mode on an oscilloscope. Magnetic terms are readily expressed in electrical terms tocalibrate the display in units of Oersteds (Oe) versus Gauss (G) . Once this calibration is achieved, salient points on the B-H curve may be easily obtained.

藉由下列4種特性參數的測量，可以決定B-H曲線，鐵芯在測試時，視同變壓器，其關係為線圈電流(H)和次線圈封閉電壓(B)來做量測其關係以"X"軸對應"Y"軸的模式顯示在示波器上，「磁」特性和「電」，特性快速的顯示出來，磁場強度(0e)和(G)在此可在B-H曲線的交點中輕易的獲得。

Equipment 設備	Function Generator 方波產生器	Amplifier 放大器	RC Network RC網路	Dual Channel Oscilloscope 雙頻道示波器

The test circuit is as shown at the Fig-3. Resistor R1 is kept small in comparison with the inductive reactance of the wound sample. Cores must be properly installed and wound with primary and secondary winding. Field strength, H , is set by varying the current which is read as voltage acorss resistor R1.

測試電路Fig-3所示，R1是線繞電感抗式電阻，鐵芯必需正確的繞初極及次極線圈，磁場強度H是穿過R1電阻之電壓而產生電流變化來設定讀值。

$$H_{[Oe]} = \frac{0.4\pi nI}{Le_{[cm]}} = \frac{0.4\pi n_P V_P}{Le_{[cm]} R1}$$

Flux density of the cores is determined by integrating the secondary voltage using the RC circuit.

鐵芯磁通密度藉由與RC電路的次線圈集合電壓來決定。

$$B_{[G]} = \frac{R_2 C V_P 10^8}{nsAe[cm^2]}$$

Where R2 is the integrating resistance , and C is the integrating capacitor. From the displayed hysteresis loop saturation flux density Bs, values for coercive force, Hc, and residual flux density, Br, may be determined once the oscilloscope is calibrated.

R2是集合總電阻，C是集合總電容，從磁滯曲線中其Bs飽和磁通密度，Hc嬌頑磁力，和Br殘磁密度都可以在示波器中被校準。

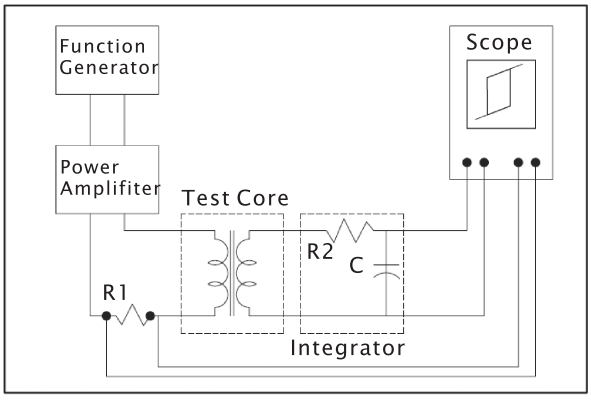
Finally, amplitude permeability, μa, is given by

最後 μa 初導磁率可由下式得知

$$\mu a = \frac{B}{H}$$

where B represents peak flux density between 10 Gauss and saturation, an H is the corresponding field strength.

B表示最大磁通密度在10高斯和飽和時之值，H為其相對的磁場強度



Test set up for measuring parameters of th B-H Loop.
Fig-3測試B-H曲線參數之電路

■Pulse Characteristics(脈衝特性)

An open collector drive circuit is used to drive a pulse through a transformer with the secondary open circuited. The effect of the transformeron the pulse is observed by monitoring waveforms.

開放式集電驅電電路使用脈衝，穿過變壓器使次線圈開路，其變壓器的脈衝效應可以在示波器上明顯觀察出來。.

Equipment 設備	Pulse Generator 脈衝產生器	DC Power Supply 直流電源供應器	Pulse Drive Circuit-appropriate for application 簡易的脈衝驅動電路應用	Dual Channel 雙頻道示波器	Oscilloscope Current Probe 電流探針