POTENTIAL +/- DIFFERENCE INC.

BI-TOROID TRANSFORMER (BiTT) PROTOTYPE TESTING DECEMBER 19TH, 2010

CONVENTIONAL TRANSFORMER vs BiTT PERFORMANCE COMARISON

The following test data is a performance comparison between a conventional transformer and a Bi-Toroid Transformer (BiTT). Physically the BiTT differs from a conventional transformer in that the BiTT has two secondary coils and an alternate flux path route for secondary BEMF induced flux. The BiTT is specifically designed to keep secondary induced flux away from the primary core.

The result is a transformer which displays virtually no primary input current increase from no-load to on-load and an on-load power factor of zero with a purely resistive load. The BiTT consumes only pure reactive power in the primary while delivering real power to the loads.

CONVENTIONAL TRANSFORMER TEST DATA

Fig. 1 Conventional EI Transformer

Fig. 2 On Load Input and Outputs
Vin = 104 V
Iin = 164 mA
Vload = 11.2 V
Iload = 89 mA

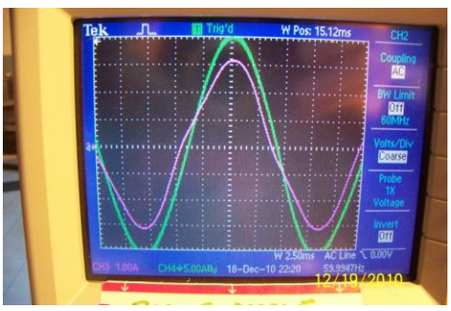

Fig. 3 Primary Current and Voltage Sine Waves

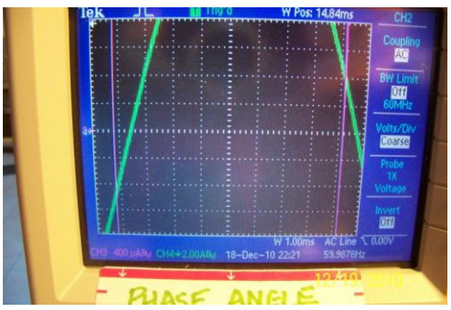

Fig. 4 Primary Power Factor = 0.97 @ 15 degrees

BI-TOROID TRANSFORMER (BiTT) TEST DATA

Fig. 5 Bi-Toroid Transformer

Fig. 6 On Load Input and Outputs
Vin = 187 V
Iin = 671 mA
Vload = 11.1 V
Iload = 84 mA

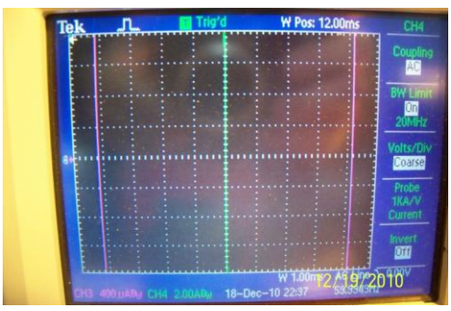

Fig. 7 Primary Power Factor = 0.0 @ 90 degrees

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CONVENTIONAL TRANSFORMER vs BiTT PERFORMANCE COMARISON

Fig. 8, 9 Checking for parallax error

CONVENTIONAL EI TRANSFORMER PERFORMANCE

Input voltage = 104 v
Input Current = 164 mA
Power Factor = 0.97
Input Power = 16.5 Watts

Load voltage = 11.2 V
Load current = 89 mA
Power Factor = 1
Output Power = 9.97 Watts

Efficiency = output/input x 100

Conventional Transformer Efficiency = 60.4%

BI-TOROID TRANSFORMER PERFORMANCE

Input voltage = 187 V
nput Current = 671 mA
Power Factor = 0.0
Input Power = 0.0 Watts

Load voltage = 11.1 V
Load current = 84 mA
Power Factor = 1
Output Power = 9.3 Watts

BiTT Efficiency = cannot be measured.