RAF TABTRONICS
Technology to the global power

CASE STUDY

DEMANDING WEIGHT AND DIMENSIONAL REQUIREMENTS

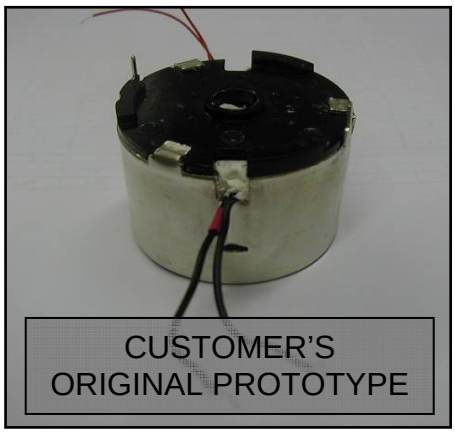
Abstract

RAF Tabtronics' challenge was to deliver a highly accurate reference/bucking transformer with significant weight and size reductions.

Challenge – Deliver transformer with significant weight and size reductions, without sacrificing performance.

Challenge:

RAF Tabtronics was challenged to deliver a highly accurate reference/bucking transformer with significant weight and size reductions. It was extremely important not to sacrifice performance during these reductions in consideration of the next assembly application.



CUSTOMER'S ORIGINAL PROTOTYPE

Technical Objective:

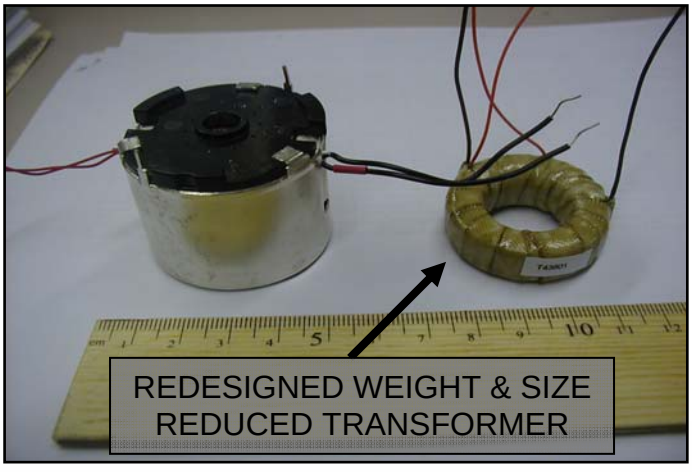
RAF Tabtronics was asked to reduce the reference/bucking transformer's size and weight by three times, versus the current bench prototype. In spite of the reduction they were asked not to change the current mutual, primary, and secondary inductance from its current frequency of 1%.

Specific Hurdles:

The parameters had to be controlled over a very broad frequency range of 300 Hz to 90 kHz. To maintain the multiple sign range RAF Tabtronics used 21 different frequencies to optimize the design.

The Solution:

In order to maintain performance and remain within the 1% multiple sign requirement, RAF Tabtronics had to carefully select the core material and accurately develop the winding configurations in order to reduce size and weight. After a very few iterations, a toroidal shape was chosen for the core and the winding configurations were adjusted to keep leakage and mutual inductances within the 1% multiple sign requirement.



REDESIGNED WEIGHT & SIZE REDUCED TRANSFORMER

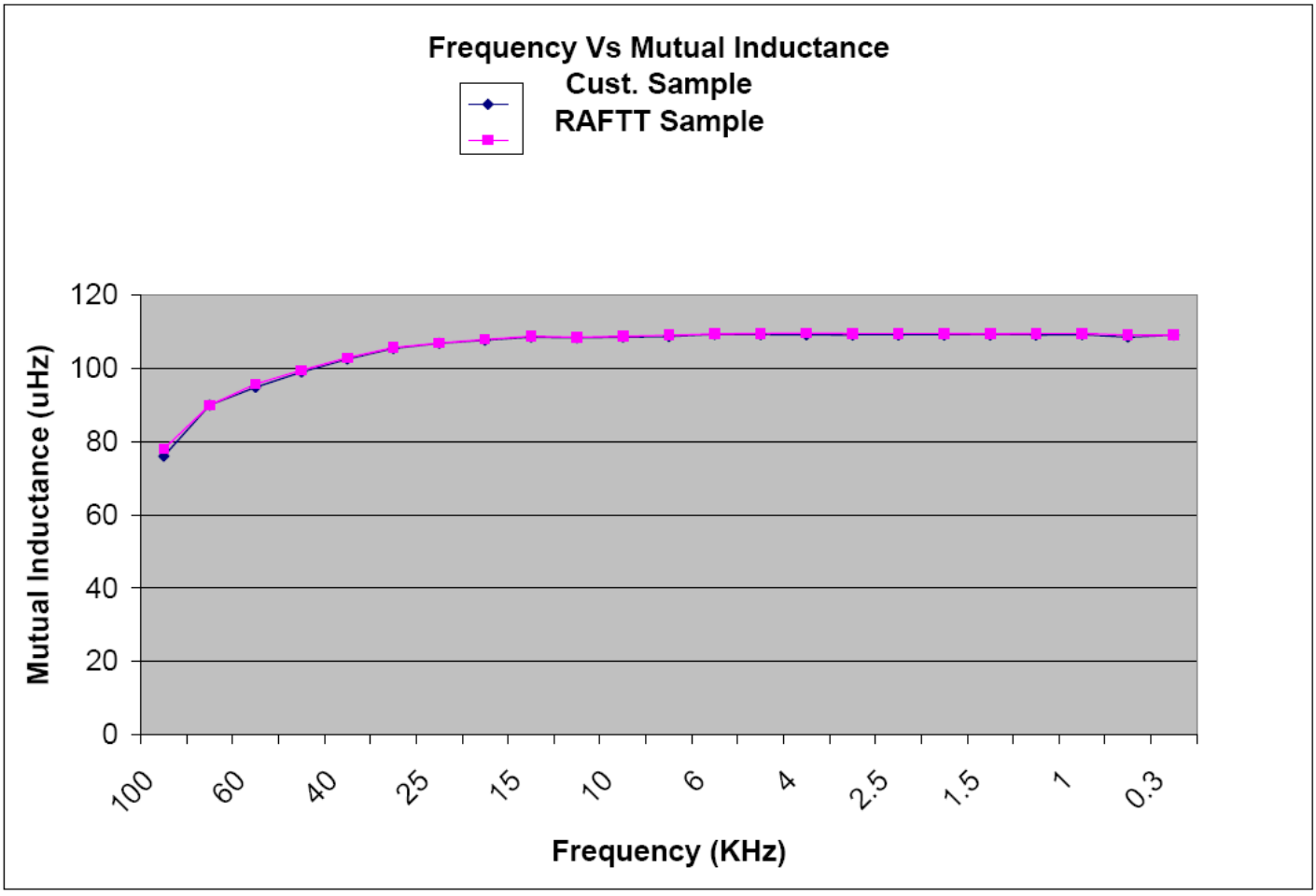
RAFTABTRONICS

Customer Success:

In the end, the newly designed reference/bucking transformers test report showed full compliance with the customer specifications. The actual results for the RAF Tabtronics solution were a height of 0.38” and weight of 78 grams.

Results:

- Significant reductions in weight and overall dimensions
- Performance was maintained despite a 3-1 reduction in size and weight
- Optimized to customer’s unique need



About RAF Tabtronics LLC

RAF Tabtronics creates advanced electromagnetic technologies and cost-effective customized solutions for the world's leading power technology companies. We produce innovative ultra-high power density and high-efficiency components which provide significant competitive advantage to our customers in defense electronics, homeland security, medical electronics, aerospace, data management, and several diverse high technology sectors.

RAF Tabtronics facilities are certified to AS9100 and ISO9001 quality management systems.

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200 Lexington Avenue
Deland, Florida
32724-2118