

STUDENT HIGH EFFICIENCY POWER AMPLIFIER design competition

MTT-5 (High Power Amplifier Components) is pleased to announce the fifth High Efficiency Power Amplifier Competition, which will take place at IEEE MTT-S International Microwave Symposium (IMS), in 2009.

This competition is open to all students and graduate students registered at an educational establishment. The competitors are required to design, construct, and measure a high efficiency power amplifier, at a frequency of their choice above 1 GHz but less than 20 GHz, and having an output power level of at least 5 watts, but less than 100 watts. The winner will be judged on the design, which demonstrates the highest power added efficiency (PAE). The power amplifiers must be brought to IMS2009 where they will be tested to verify their performance. A representative of the design group must be present at the testing to assist with the evaluation. The winner will receive a prize of \$1,000, and will be invited to submit a paper describing the design for the MTT Microwaves Magazine.

Questions can be sent to Dr. Kiki Ikossi at <ikossi@ieee.org>

Support for the testing provided by



Agilent Technologies



Modelithics, Inc. is offering models for student use in their PA designs. Requests: <http://www.modelithics.com/swrf.asp>
code MTTCOMP09

PA Competition Rules:

- 1 The power amplifier (PA) design may use any type of technology, but must be the result of student effort both in the amplifier design and fabrication.
- 2 The PA mechanical design should allow for internal inspection of all relevant components and circuit elements. The RF ports should be standard coaxial connectors, type N or SMA. Bias connections should be banana plugs
- 3 The PA must operate at a frequency of greater than 1 GHz but less than 20 GHz, and have an output power level of at least 5 watts, but less than 100 watts.
- 4 All amplifiers should require less than 25 dBm of input power to reach the output level required for maximum efficiency.
- 5 Amplifier entries should be submitted with measured data, including dc supply requirements, frequency, RF drive and output power, and PAE. PAE will be defined as $(RF_{out} - RF_{in})/dc$. Measurements will be under CW operation at room ambient conditions into a 50 ohm load. Only the power at the fundamental CW frequency will be included in the measurement of output power.
- 6 The winner will be based on the amplifier's power added efficiency, measured during official testing, multiplied by a frequency weighting factor having the form $(GHz)^{1/4}$. Award certificates will be presented to all participants at the Student Award Luncheon. The decision of the judges will be final.
- 7 Contestants must notify the MTT-5 committee by e-mailing to Dr. Kiki Ikossi <ikossi@ieee.org> of their intention to compete in the contest before April 1, 2009 This notification should include information on the University or educational affiliation of the entry, and the PA's approximate power level, dc voltage requirements and frequency of operation. Dr. Ikossi can also provide assistance in obtaining device samples.

2009 International Microwave Symposium

7-12 June, Boston Convention & Exhibition Center
IEEE Microwave Theory and Techniques Society



IEEE

