

SDC-WBB	
Title:	Wideband Baluns
MTT-S Technical Committee and Industrial Sponsors:	MTT-17 (HF-VHF-UHF Technology)
Competition Coordinator(s):	Robert Caverly (r.caverly@ieee.org) Marc Franco (mfranco@ieee.org) Murat Eron (murat.eron@ieee.org)
Description:	MTT-17 announces the third student balun design contest that will take place at IEEE IMS 2013. The competitors are required to design, construct and test a wideband balun at a frequency band starting from a minimum of 1 MHz to as high as possible. There is a need in industry for amplifiers in the high frequency (HF-VHF-UHF) region that cover several octaves of bandwidth. Differential circuits using solid-state devices are ideally suited for these applications, but often require wideband baluns to both transform the differential balanced output to a single-ended unbalanced output, and to also provide impedance transformation. This competition provides the opportunity for students to find interesting solutions to this problem.
Design Specifications:	<ul style="list-style-type: none"> - Female SMA connectors used to terminate all ports. - Minimum impedance transformation ratio of 2 (must be specified by the student before measurement). - Maximum VSWR of 2:1 at all ports. - Insertion loss of less than 1 dB. - Common mode rejection ratio of more than 25 dB. - Imbalance of less than 1 dB and 2.5 degrees. - The balun must be completely passive. - The balun must be packaged in such a way so that the judges can visually examine its physical details. - The design must be documented, including schematics and a bill of materials. All the main components need to be identified by manufacturer and part number. If ferrites are used, their main characteristics must be included. <i>The use of commercially built baluns or commercial balun modules is not permitted.</i>
Evaluations Criteria:	The winner will be the design that can meet all the specifications above and the rules listed here from at least 1 MHz (or below) to the highest possible frequency.
How To Participate:	<ul style="list-style-type: none"> - Submit an entry form (http://ims2013.mtt.org/student-competitions.html) to both Robert Caverly (r.caverly@ieee.org) and the Student Design Competition chair at (ims2013tpc@gmail.com) by April 15, 2013. Please contact Robert Caverly (r.caverly@ieee.org) for more information on this competition. Additional design information for students can be found at http://rcaverly.ee.villanova.edu/balun/balun.html . - The students should clearly indicate performance goals on the entry form.
Awards:	The winner(s) will receive a prize of \$1,000 (USD) and will be invited to submit a paper describing the design for Microwave Magazine.
Important Dates:	<ul style="list-style-type: none"> - April 15, 2013: Last day to submit entry forms - June, 2013: Competition at IMS 2013