

STUDENT LOW NOISE AMPLIFIER DESIGN COMPETITION RULES:

1. The LNA may use any technology, but must be the result of student effort. Use of commercial amplifier subsystems and passive components is allowed.
2. The LNA shall allow for internal inspection of the circuitry.
3. The LNA shall be capable of amplifying a 2.45 GHz signal with at least 15 dB of small-signal gain with a 50 ohm source and load impedance. The maximum small-signal gain shall not exceed 30 dB in a 50 ohm measurement system.
4. The LNA must be operated at room temperature.
5. The LNA shall utilize 3.5mm or SMA connectors on both the input and output. The prime power shall use two wires with banana plugs at least 0.5 meter in length.
6. The prime DC power shall be totally derived from a single supply with a polarity of +12 Volts DC or less **or** -12 Volts DC or less employing two wires. The metered power supply will be provided by the organizers.
7. The performance of the LNA is based on the noise figure at 2.45 GHz measured with a Rohde & Schwarz (model FSQ26, FSU26, or equivalent) signal analyzer using a noise diode source.



8. The LNA circuit with the lowest measured noise figure at 2.45 GHz shall be declared the winner. If identical noise figures are observed during testing, the winner shall be determined by the lowest input prime power.
9. All contestants are expected to bring their LNA to IMS2009 to be measured on Tuesday, 9 June 2009. The measured noise figure, gain, and input power measurements will be the official values used for the competition. The decision of the judges shall be final.
10. Award certificates will be presented to participants at the Student Award Luncheon at IMS2009.
11. The student's advisor must notify Roger Kaul by emailing r.kaul@ieee.org of their intention to participate in the contest before 1 April 2009. This notification should include information on the university or educational affiliation of the entry, a statement that the LNA is the product of the student(s), the approximate noise figure, small-signal gain in a 50 ohm system, DC input voltage and DC input current.