CLAIMS

1. A method of heating materials using broadband microwave power, comprising the steps of:

placing a selected workpiece in a multi-mode microwave applicator cavity;

providing a microwave power supply in communication with said cavity, said power supply including a small-signal RF generating circuit, a high power microwave amplifier, and forward and reflected power detectors, said detectors separated from one another by an isolator;

heating at least some of the components of said small-signal RF circuit to a selected temperature above ambient;

providing a control system to perform the following functions:

run an autoleveling routine to automatically generate an autolevel table and download said autolevel table to said control system;

provide an automatic power control system to limit the rate of power adjustment;

wherein said automatic power control system further includes a limiter that prevents adjustments beyond a preset amount; and,

applying microwave power into said applicator cavity under the control of said control system to heat said workpiece.