Microwave Ovens Test Protocol

Executive Summary

This Microwave Test Program consists of 7 procedural topics. (Note that no industry standards are used or referenced.) In general, they are:

1. Heating evenness - This test measures how evenly a microwave reheats a food item.

2. Speed of heating - This test indirectly measures the power output of a microwave.

3. Defrosting evenness - This test measures how well the automatic-defrost program works.

4. Microwave operating noise and venting (Air Flow) Test - This test measures the noise level of the microwave on the highest setting. In addition, this test measures the vent system noise and airflow for Over-the-range microwave ovens.

5. Popcorn Test - This test evaluates how well the “Popcorn” button, present on almost all microwave ovens, performs.

6. Reheating Test - This test evaluates how well the “Reheat” or similar button performs.

7. Specs, Features, Dimensions and Ease of Use - Various specs and features are listed which are displayed in the ratings.

DESCRIPTION OF TESTS/EVALUATIONS TO BE CONDUCTED

1. **Uniformity (Heating Evenness)** – refrigerated mashed potatoes are heated for 10 minutes on high power in each oven. Then the temperatures are recorded using a grid of temperature probes.

2. **Speed of Heating** – water is heated for 5 minutes on the “high” setting. Measure the final temperature.

3. **Defrosting evenness (Auto Defrost)** – The Auto defrost function is used to see
how well each oven defrosts ground chuck meat.

4. **Microwave operating noise** – Microwave operating noise is measured using a noise meter.

   **Vent operating noise** *(Over the range models only)* – Vent operating noise is measured for both the highest and lowest fan settings, both with and without the microwave operating on high, using a noise meter.

   **Vent system airflow** *(Over the range models only)* – Assesses the airflow of the exhaust fan when operated on its highest fan speed setting.

5. **Popcorn test** – Using the automatic popcorn button, a pack of popcorn is heated in each oven. The amount of popped, unpopped, and burnt kernels is recorded.

6. **Reheating test** – A previously cooked and refrigerated lasagna “leftover” is reheated using the appropriate automatic button, and the temperatures are measured after reheating.

7. **Specs, Features, Dimensions and Ease of Use** – This encompasses a number of things, including but not limited to the following:

   **Capacity** – Measured capacity is the usable space.

   **Ease of use** - The following tasks are judged:
   - Ease of selecting oven programs
   - Interpreting prompts
   - Set cooking time and power levels
   - Fit of cookware