Speed of light in microwave oven

A very simple experiment can be done, similar to Hertz’s experiment with radio waves, to determine the speed of light using a microwave oven.

We will be using fax paper (thermal paper), but at home you can use chocolates and marshmallows. (You won’t need a grown up to help you eat the delicious gooey mess afterwards!)

Step 1. Take the spinning plate out of the microwave

Step 2. Place the fax paper shiny side up on a plate or piece of styrofoam

Step 3. Use a wet cloth to make the fax paper damp

Step 4. Turn the microwave on, power setting high for about 30 seconds

Step 5. Measure the distance between the hotspots on the fax paper (If you don’t have any hotspots, you can try again in the microwave, or use another, damper piece of fax paper)

The distance you have measured is $\lambda/2$.

What is the wavelength in meters of the microwaves?

Using the equation $v = f\lambda$, where $v$ is speed, $\lambda$ is the wavelength and $f$ is the frequency of the wave (You’ll need to look on the back of the microwave for that number!)

Calculate the speed of light. Show your working.

What is the actual value for the speed of light? How close did you get? Do you think this experiment with chocolate and marshmallows will be more accurate?