VISUAL ANALYZER
Free Download at http://www.sillanumsoft.com/

Thanks to Jared for bringing my attention to this free device available on the internet.

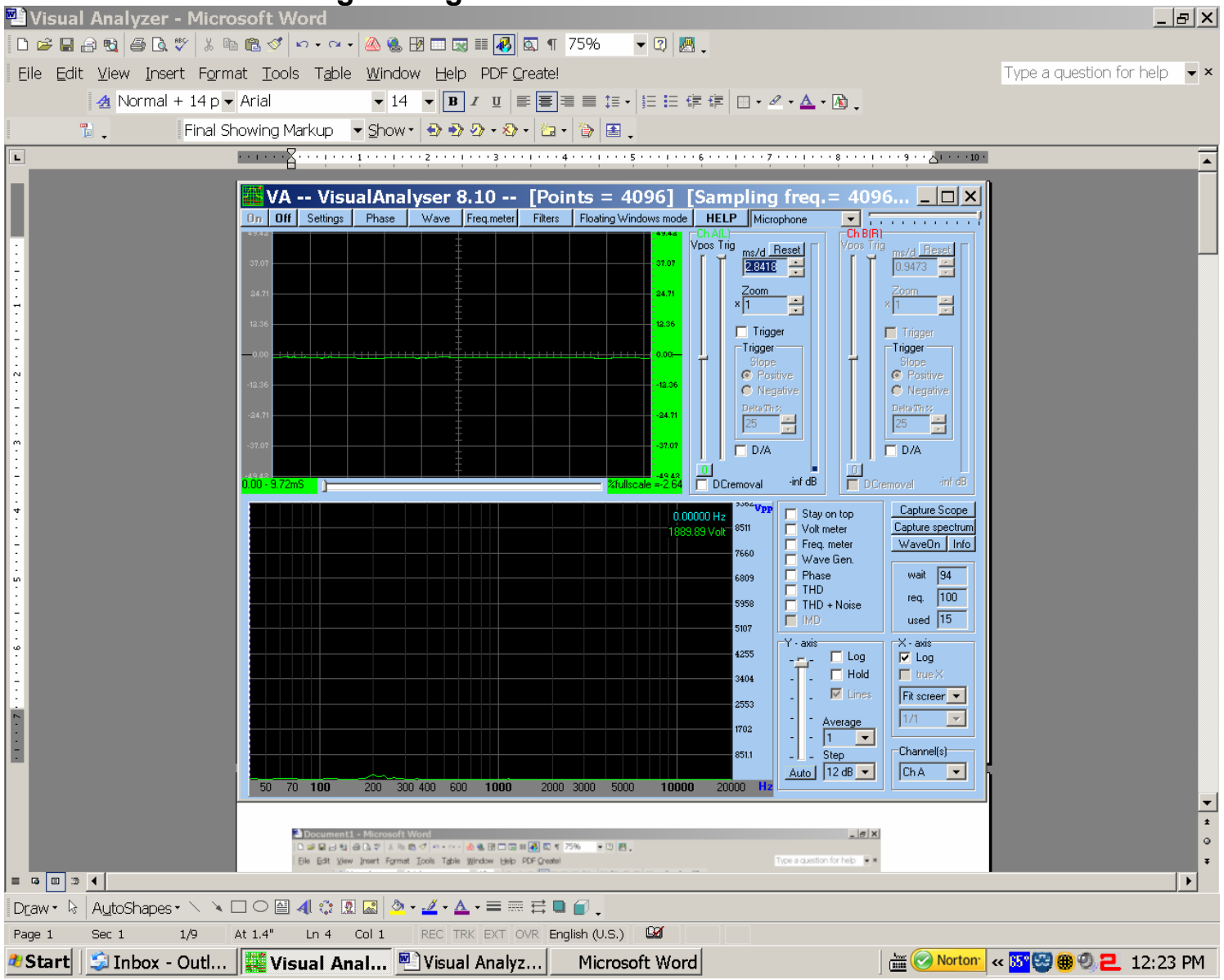
Download the Analyzer. Get or plug in a computer microphone. When the Analyzer starts up it will check your sound card settings. When the screen appears, go to the menu box at upper right next to HELP box and select “Microphone” as your input. Now you see that every sound you make is visually represented as in an oscilloscope.

Change the settings to those shown in the first screen on the next page. The Ms/d should be 2.8418 (the green color is hard to make out, so I have highlighted it for you on the screen shot). On the bottom screen. Y-Axis should have nothing checked, but X-axis should be checked at Log, as shown in the screen shot.

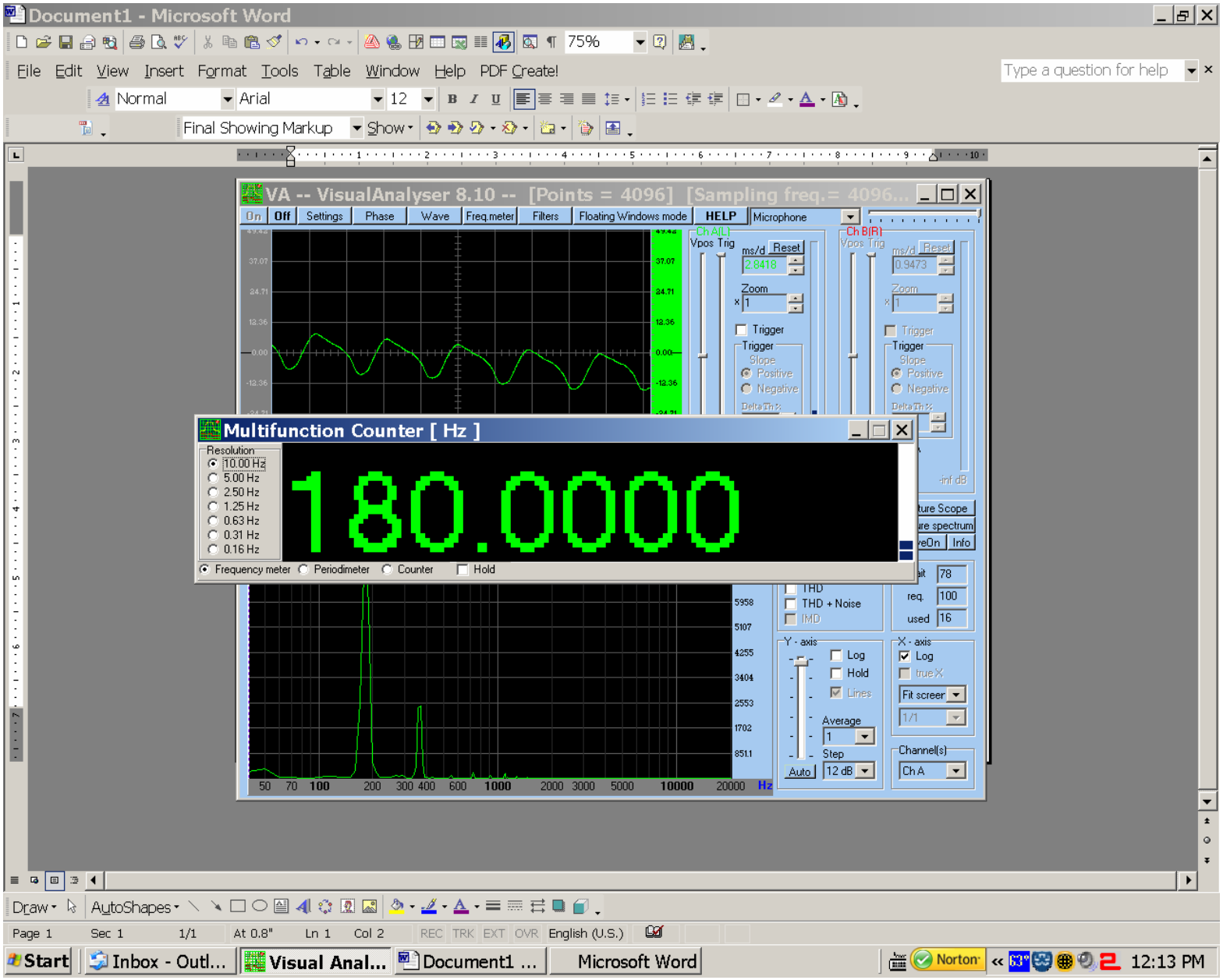
Now, check the box above that says Frequ. Meter. This gives you a popup meter for pitch or frequency. Hum (mouth closed, humming through nostrils) a tone. Raise and lower your pitch until the meter reads 180.000. Now sing the same pitch, but open your mouth. The meter should read 360.000 Look at the lower screen. You will see two spikes, one at 180 hz and another at the octave above, 360 hz. – 370 hz. The 180 hz is your Generating Tone and the 370 hz tone is your First Harmonic. When you hum F# with closed mouth, what you “hear” is the Generating Tone. When you sing the same F# with lips tightly drawn in an “O,” you “qualify” or emphasize the First Harmonic, but sounds like the same tone to your ears. That is why First Harmonic is the hardest one to create and hear. It sounds like the F# pitch muffled down. But on these meters you can see it. You will never be able to qualify the Generating Tone unless you can do Tuvan throat harmonics (“overtone singing”)!

When you have your 370 hz or F# tone well established, minimize or click off the Frequ. Meter. From now on, watch the lower screen. Each harmonic you create, from first to seventh, will manifest as the next spike on the X-axis. However, because artifact “strong” harmonics intrude into certain “weaker” ones, especially the Second Harmonic, you will probably get a little manifestation of the Third Harmonic. But when you create the Third Harmonic, it will spike up and become prominent. Look at the oscilloscope screen on top for each Harmonic to see how it changes shape by adding new wrinkles at the top of the sine wave as each new spike or Harmonic appears in the window below. By printing this out and using it as a guide, you will be able to “see” each Harmonic as you create it, then be able to hear it, and finally to create it at will.

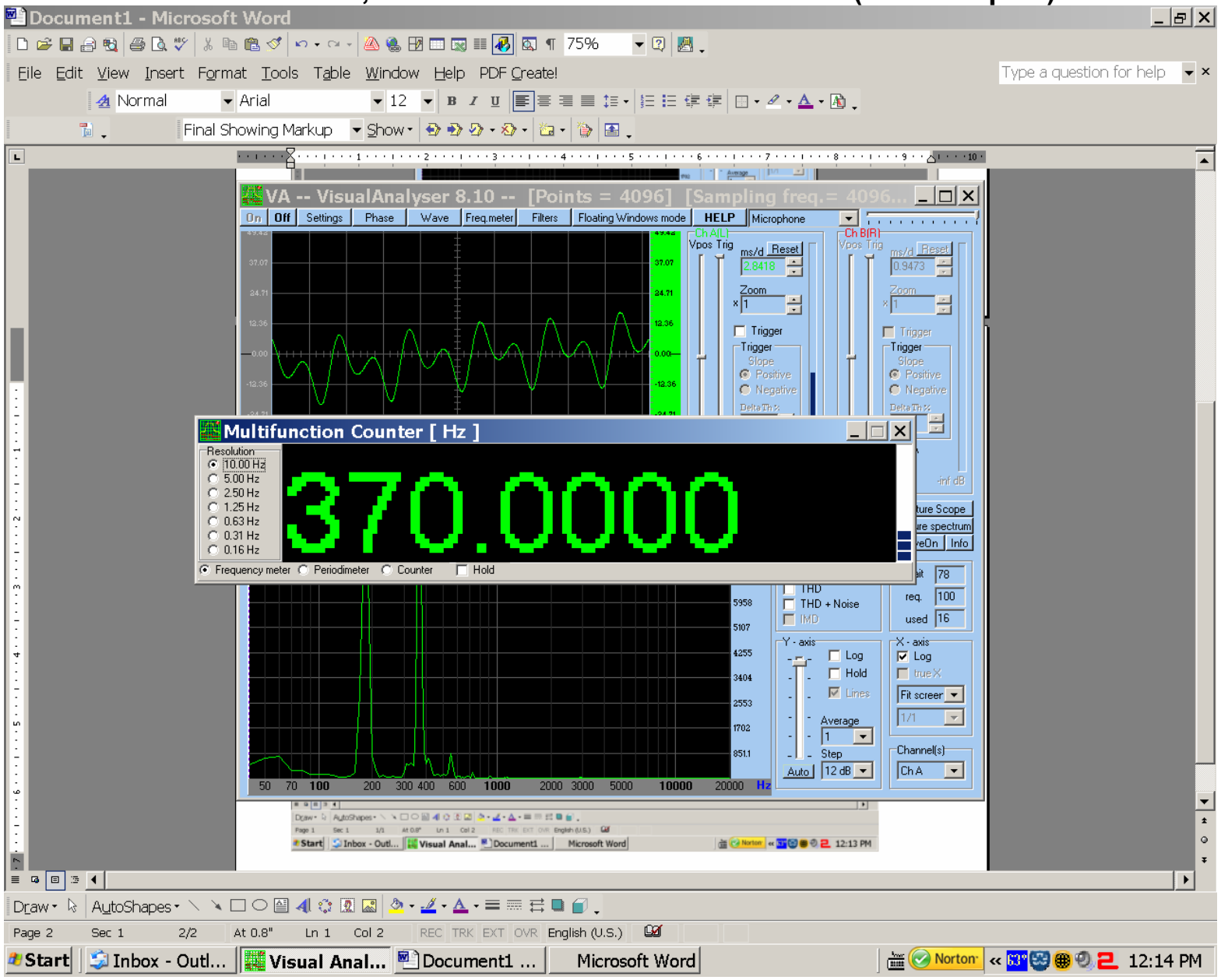
Your starting settings should be as shown here for all values:



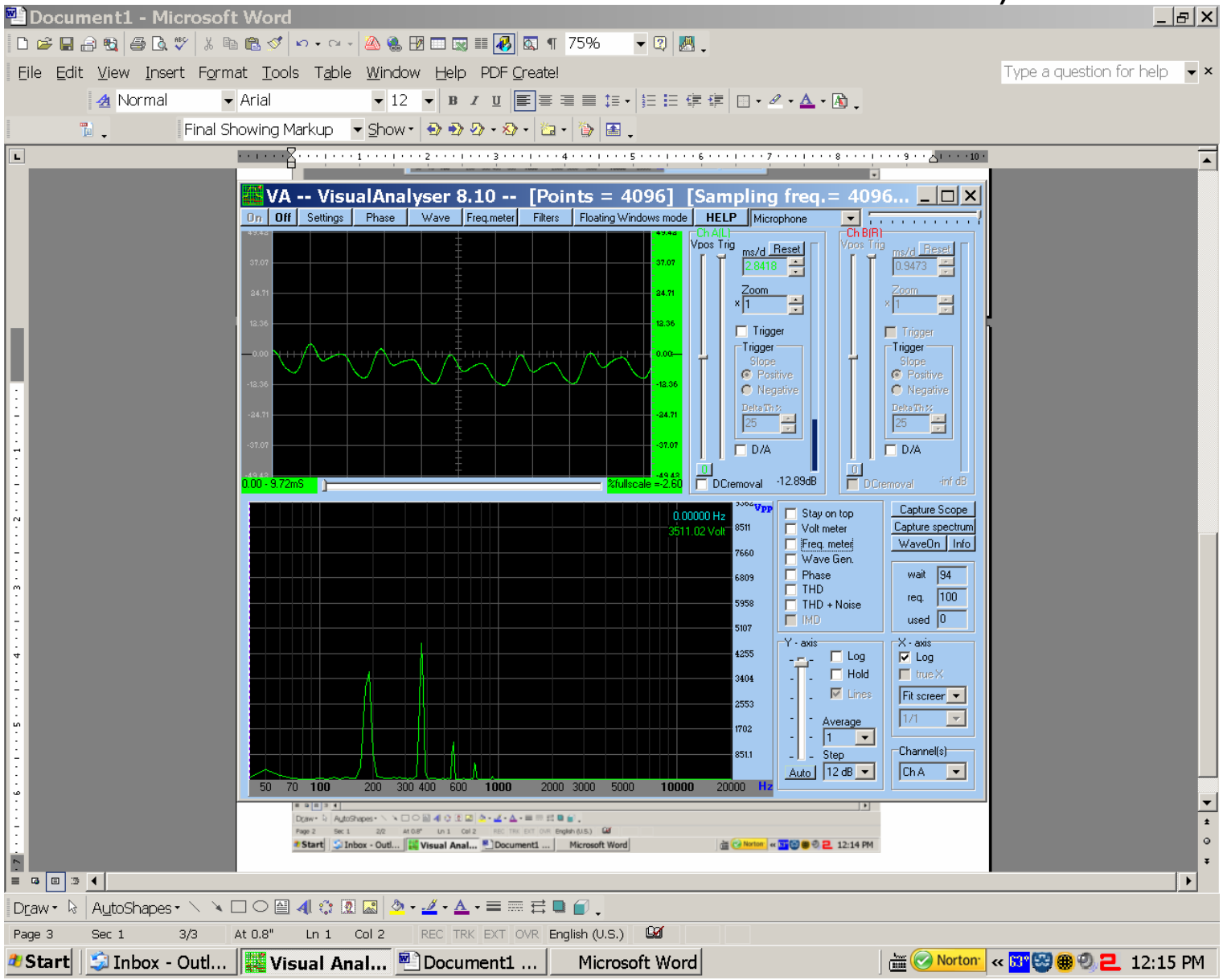
ESTABLISH GENERATING F# PITCH BY HUMMING



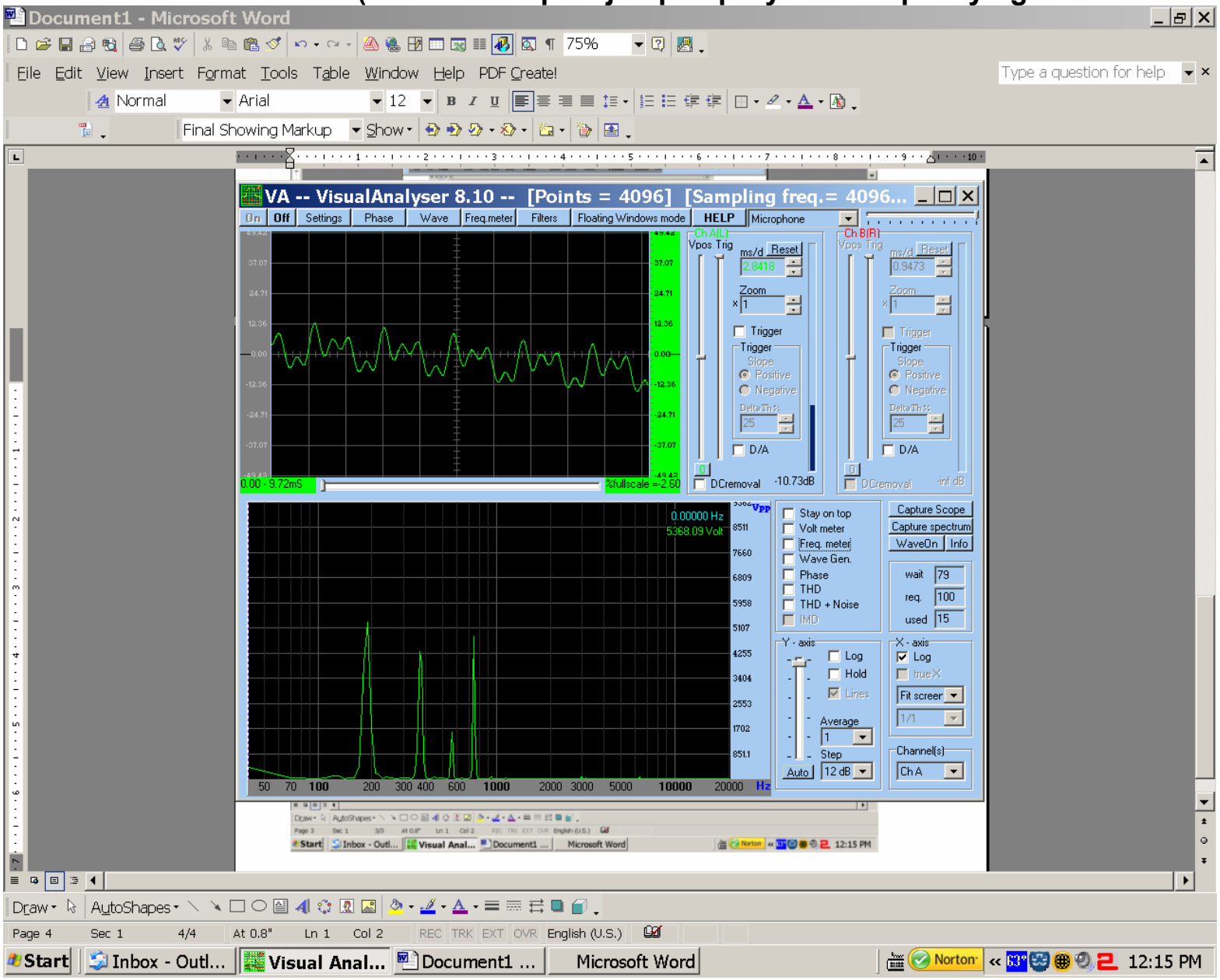
MOUTH OPEN, ESTABLISH FIRST F# HARMONIC (second spike)



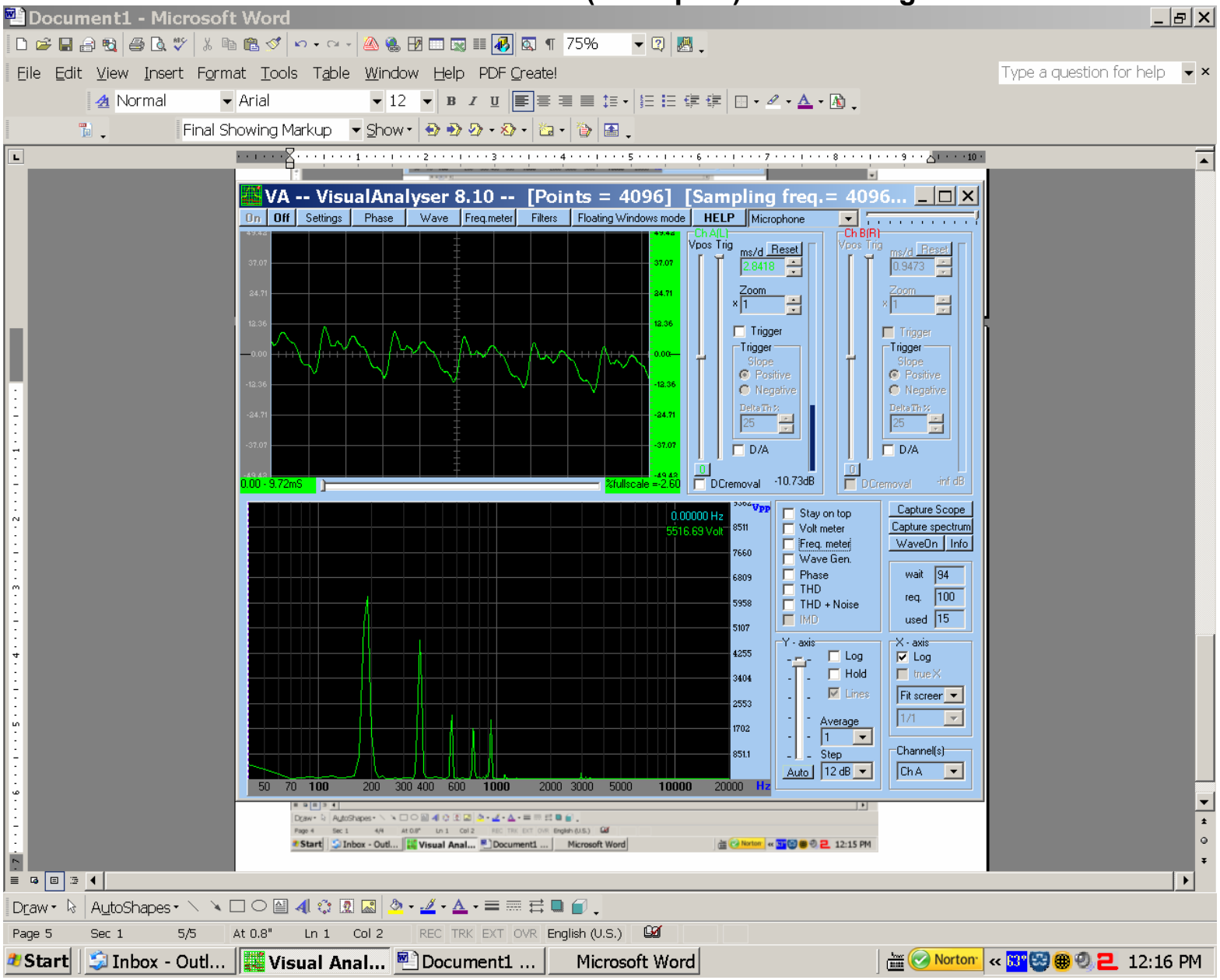
CREATE SECOND HARMONIC (third spike appears—notice artifact fourth spike which makes it almost as difficult as First Harmonic to hear and create)



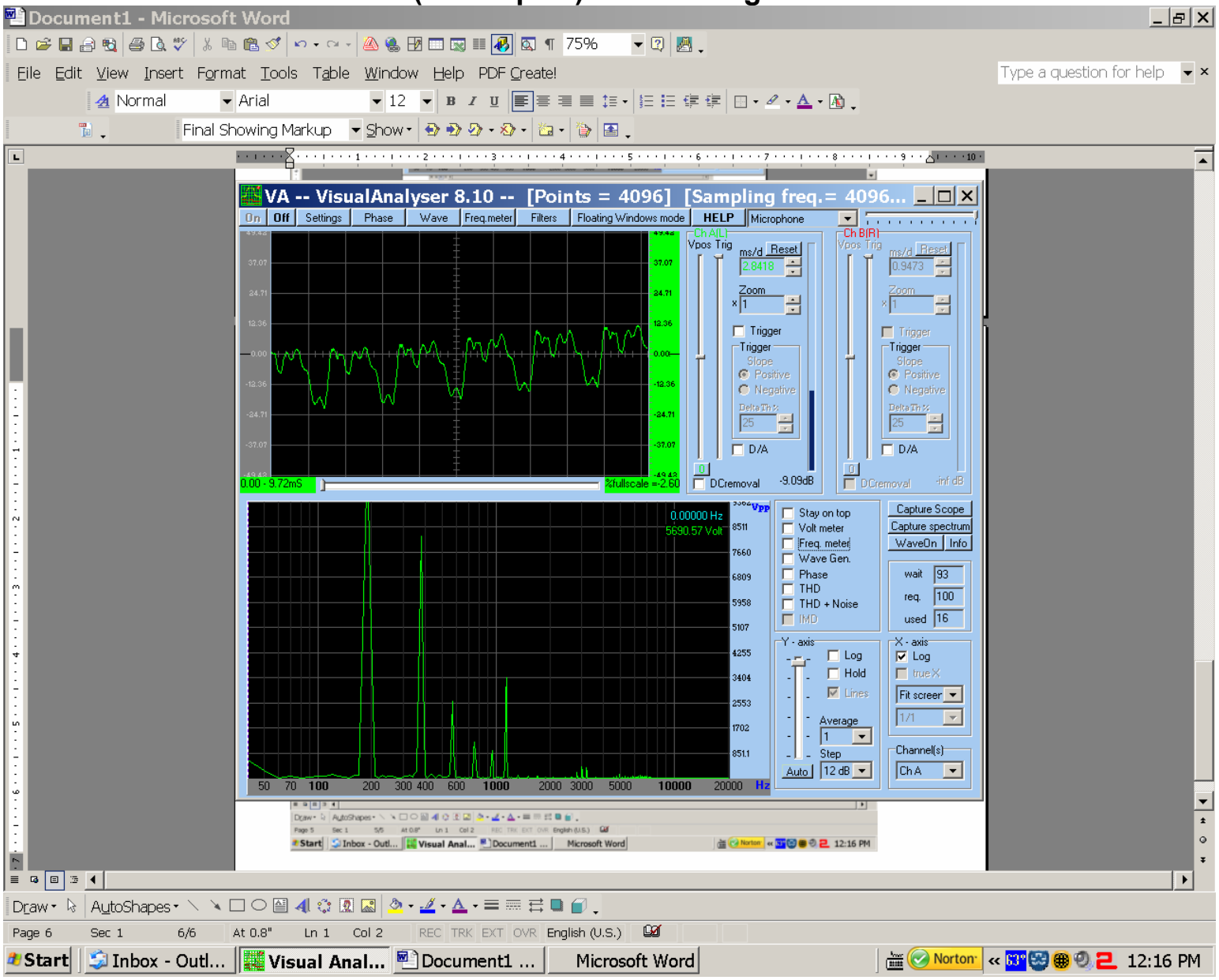
CREATE THIRD HARMONIC (now fourth spike jumps up—you are "qualifying" that Harmonic)



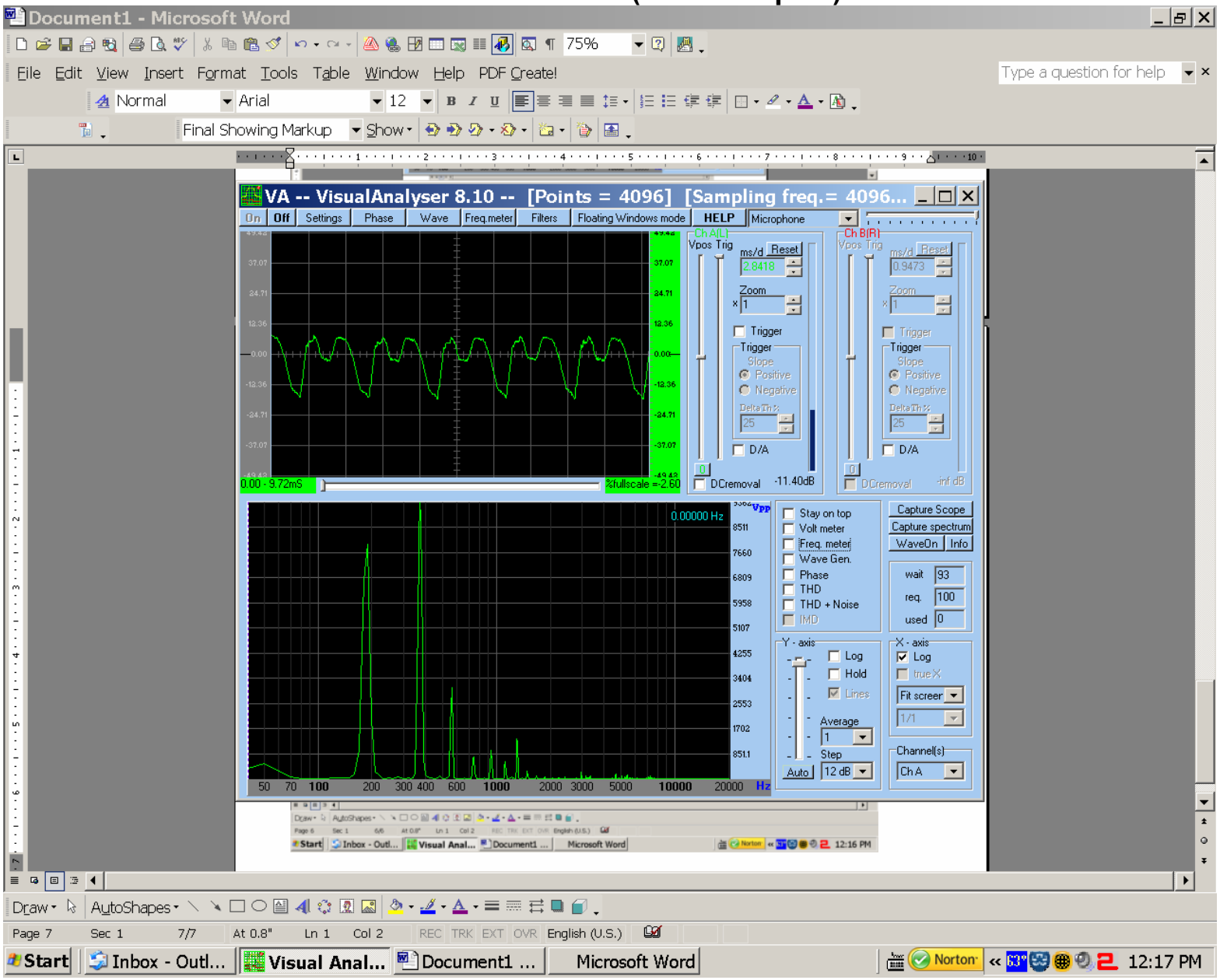
CREATE FOURTH OR HEART HARMONIC (fifth spike). Note change in wave form above.



FIFTH HARMONIC (sixth spike). Note change in wave form above.



SIXTH HARMONIC (seventh spike).



SEVENTH HARMONIC (eighth spike, four octaves above Generating Tone).