

# FFT Frequency Resolution vs. Graph Update Rate of a Vibration Signal

---

*Source:* <http://newsgroups.derkeiler.com/Archive/Comp/comp.lang.labview/2008-05/msg02326.html>

---

- *From:* chrishassan <x@xxxxxxx>
  - *Date:* Fri, 9 May 2008 12:40:07 -0500 (CDT)
- 

Hello,

&nbsp;

First, what I know:

The frequency resolution (Hz) of an fft is  $1/\text{acquisitionTime}$  (e.g. if 2 seconds of data are acquired, the frequency resolution is  $1/2\text{s} = 0.5\text{Hz}$ ).

&nbsp;

What I'm Wondering:

Let's say I'm displaying an acquired signal on a graph and freq res = 0.5Hz. The graph update rate is therefore approx 2sec. This may appear to be an application with a problem from a user's perspective.

Can I increase the update rate?

&nbsp;

It seems that with vibration data (i.e. mostly non-periodic) I could create a buffer that is 2sec long. The first data acquisition sequence will fill the buffer with 2sec of data. Then I could just acquire something shorter than 2sec of data (let's say 1/4sec). If I am acquiring data continuously and I push the 1/4sec of data into the front of my buffer then perform the fft again, I have effectively increased my graph update rate to 1/4sec and my users think I'm great.

Can anyone shed any light on whether or not (why/why not) this will work?

&nbsp;

Thanks for your time,

Chris &nbsp;

.