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Subject: Re: FFT wierdness in WAVE  
Posted by [Jackel](#) on Thu, 28 Mar 1996 08:00:00 GMT  
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In article <4jbl6k\$2dp@news.tamu.edu> howie@skeefum.tamu.edu (Matt Howard) writes:  
> Subject: FFT wierdness in WAVE

> Can anyone here enlighten me on why the plots produced with the  
> following commands are so different?

[Text deleted]

>> plot,abs(fft(findgen(8395),-1)) - works!

>> plot,abs(fft(findgen(8396),-1)) - fails! Peaks where none should be.

A couple of versions ago, the IDL bug-fix notes mentioned a problem with  
FFT's when the length was not factorable into small primes. For example,  
of the two numbers in your example, the "fails" case does not factor well:

```
IDL> print,prime_factors(8396)
      2      2    2099
```

but the "works" case does (relatively speaking).

```
IDL> print,prime_factors(8395)
      5     23     73
```

(Note that this is also the reason why the first case takes much longer to  
compute.)

Since PV-Wave got their source from IDL quite a while ago, it seems  
likely that you're seeing the same problems. You can either hope that it gets  
fixed in the next version, or switch to IDL :)

Brian Jackel  
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