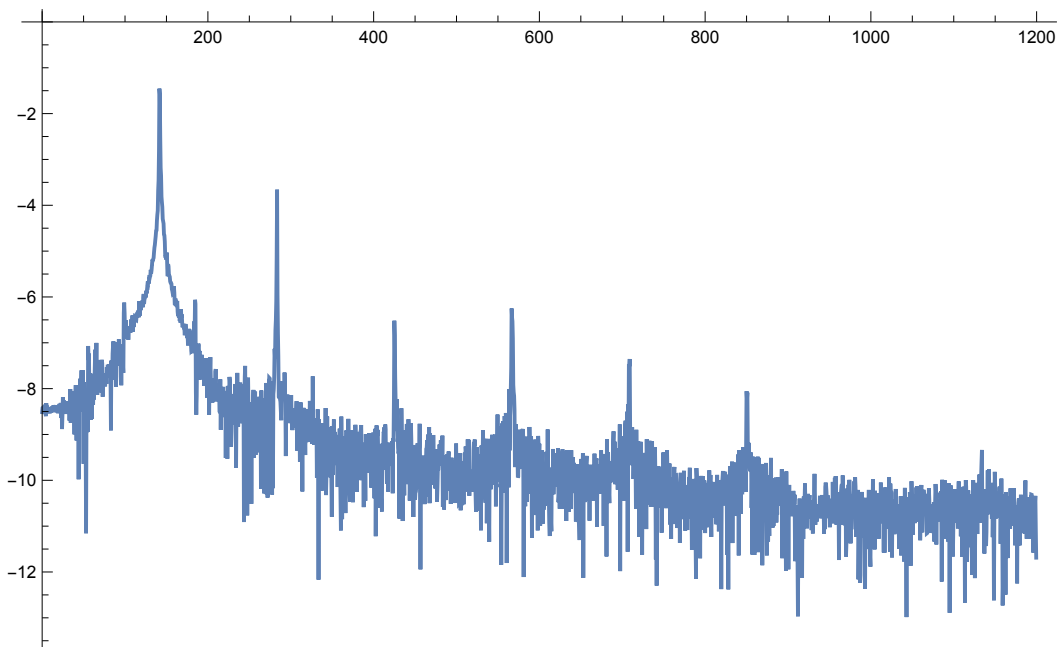


Measured spectrum of string in magnetic field

first the unaffected string

```
In[ ]:= data = First@
      Import[FileNameJoin[{NotebookDirectory[], "01_AlmostUnaffected.wav"}], "Data"];
sr = 44100; nfft = 2 sr;
wav = data[[1 ;; nfft]];
spec = Log[Abs[Fourier[wav, FourierParameters -> {-1, 1}]]];
ssf = N[Range[0, sr / 2, sr / nfft]];
maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange -> All]
```

Out[]:=



```
In[ ]:= {141.5, 284, 425, 568, 708, 850} / 141.5
```

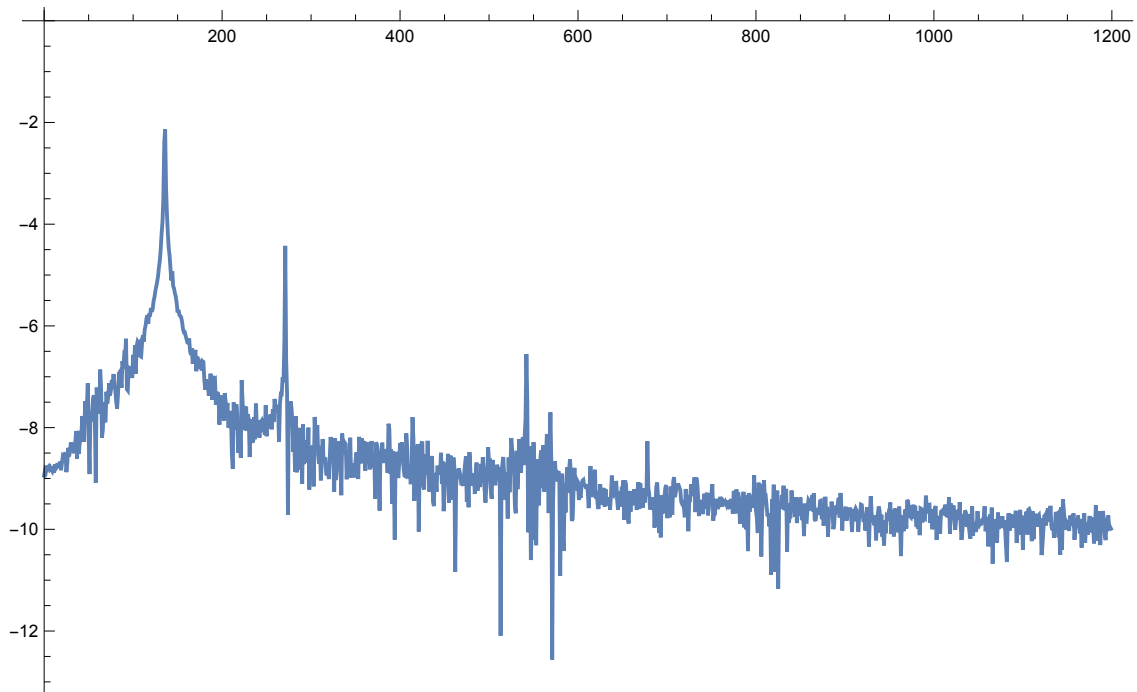
Out[]:=

```
{1., 2.00707, 3.00353, 4.01413, 5.00353, 6.00707}
```

now the All_intoField string

```
In[ ]:= data = First@
      Import[FileNameJoin[{NotebookDirectory[], "04_AllintoField.wav"}], "Data"];
      sr = 44100; nfft = sr;
      wav = data[[1 ;; nfft]];
      spec = Log[Abs[Fourier[wav, FourierParameters → {-1, 1}]]];
      ssf = N[Range[0, sr / 2, sr / nfft]];
      maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
      ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange → All]
```

Out[]:=



```
In[ ]:= {137, 271, 542, 678} / 137.
```

Out[]:=

```
{1., 1.9781, 3.9562, 4.94891}
```

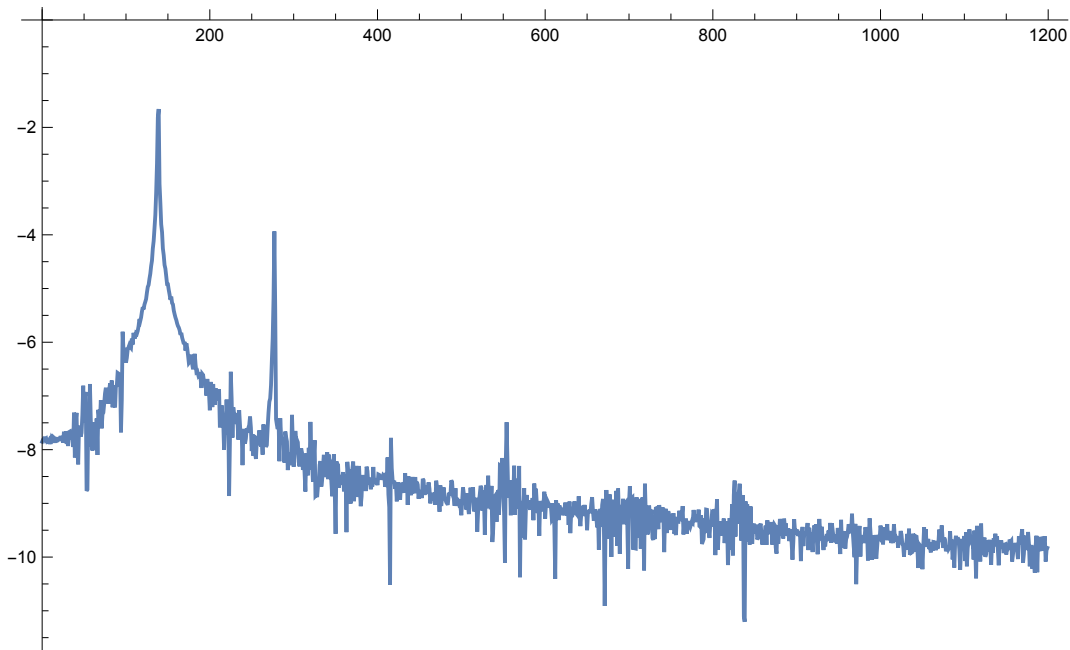
02_HalvIntoField

```

In[ ]:= data = First@
  Import[FileNameJoin[{NotebookDirectory[], "02_HalvIntoField.wav"}], "Data"];
sr = 44100; nfft = sr;
wav = data[[1 ;; nfft]];
spec = Log[Abs[Fourier[wav, FourierParameters → {-1, 1}]]];
ssf = N[Range[0, sr / 2, sr / nfft]];
maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange → All]

```

Out[]:=



```

In[ ]:= {138, 277, 416, 554} / 138.

```

Out[]:=

```
{1., 2.00725, 3.01449, 4.01449}
```

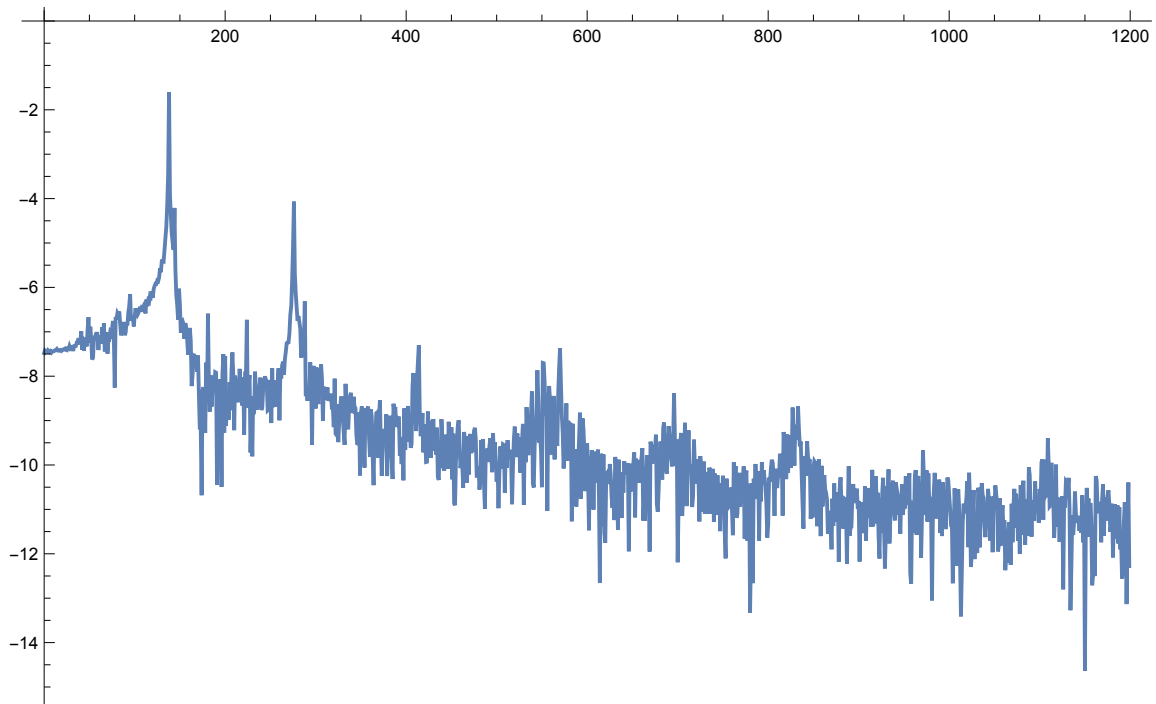
03_HalfIntoField02

```

In[ ]:= data = First@
  Import[FileNameJoin[{NotebookDirectory[], "03_HalfIntoField02.wav"}], "Data"];
sr = 44100; nfft = sr;
wav = data[[1 ;; nfft]];
spec = Log[Abs[Fourier[wav, FourierParameters → {-1, 1}]]];
ssf = N[Range[0, sr / 2, sr / nfft]];
maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange → All]

```

Out[]:=



```

In[ ]:= {138, 275, 414, 570, 696} / 138.

```

Out[]:=

```

{1., 1.99275, 3., 4.13043, 5.04348}

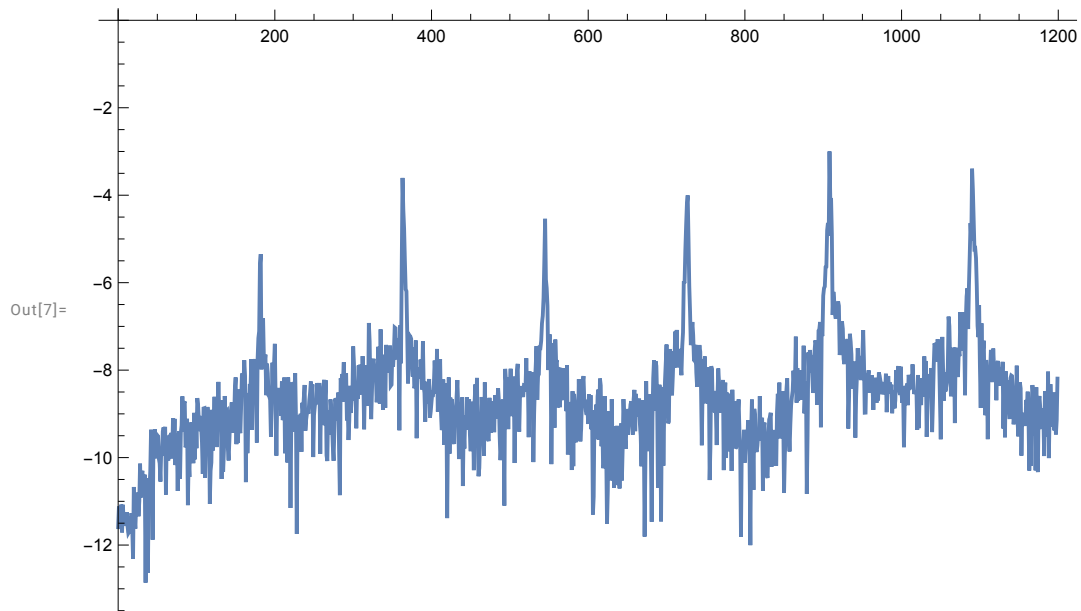
```

1738 - bowUnaffected

```

In[1]:= data = First@
  Import[FileNameJoin[{NotebookDirectory[], "1738-bowUnaffected.wav"}], "Data"];
sr = 44100; nfft = sr;
wav = data[[1 ;; nfft]];
spec = Log[Abs[Fourier[wav, FourierParameters → {-1, 1}]]];
ssf = N[Range[0, sr / 2, sr / nfft]];
maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange → All]

```



```

In[8]:= {181, 364, 544, 725, 908, 1090} / 181.

```

```

Out[8]= {1., 2.01105, 3.00552, 4.00552, 5.01657, 6.0221}

```

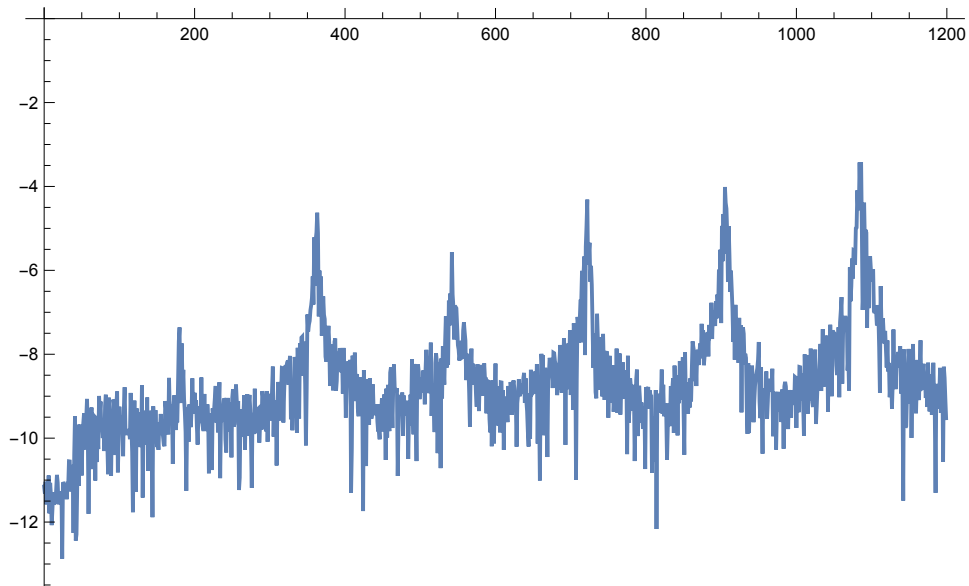
1738 - bowAffected

```

In[9]:= data = First@
  Import[FileNameJoin[{NotebookDirectory[], "1738-bowAffected.wav"}], "Data"];
sr = 44100; nfft = sr;
wav = data[[1 ;; nfft]];
spec = Log[Abs[Fourier[wav, FourierParameters → {-1, 1}]]];
ssf = N[Range[0, sr / 2, sr / nfft]];
maxFreq = 1200; numDisp = Length[Select[ssf, # < maxFreq &]];
ListLinePlot[Transpose[{ssf[[1 ;; numDisp]], spec[[1 ;; numDisp]]}], PlotRange → All]

```

Out[15]=



```

In[16]:= {180, 363, 542, 722, 905, 1085} / 180.

```

Out[16]=

```

{1., 2.01667, 3.01111, 4.01111, 5.02778, 6.02778}

```