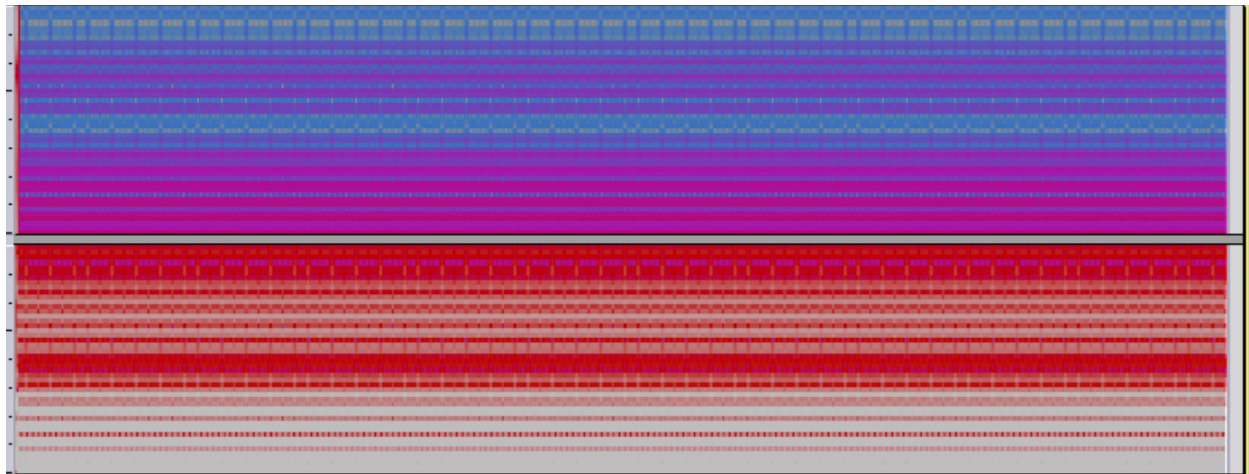
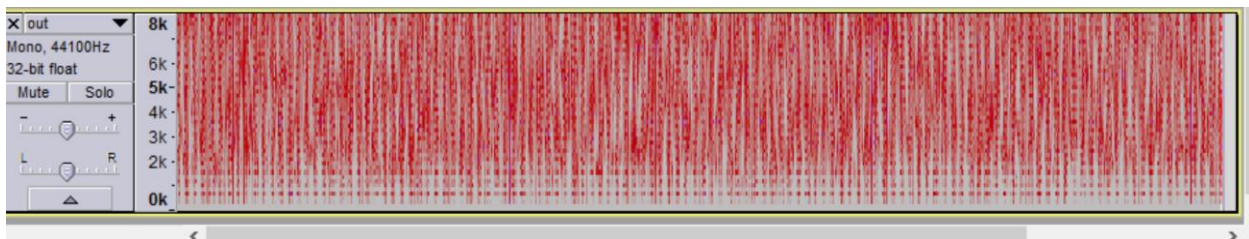


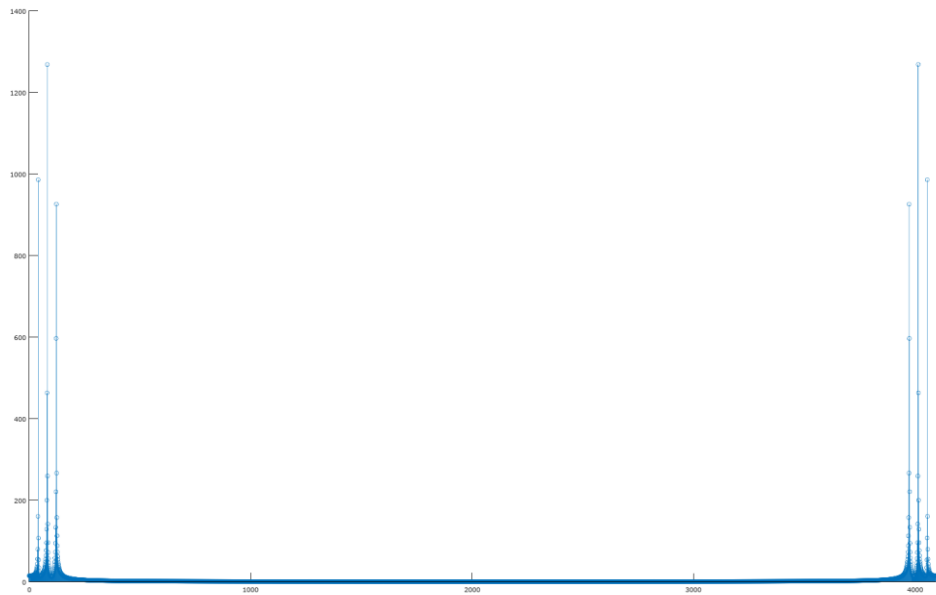
1.3



1.4



## 2.3



3.7397, 1289.5)

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <math.h>
```

```
#include <time.h>
```

```
#define N 4096
```

```
#define PI 3.14159265359
```

```
int main()
```

```
{
```

```
    int n, k;
```

```
    float Xre[N], Xim[N];
```

```
    float M[N];
```

```
        float x[N] = {0.0, 0.22917193450241796, 0.45295616269276984, 0.66612423841051327,  
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```

```
for (k=0 ; k<N ; ++k)
{
    Xre[k] = 0;

    for (n=0 ; n<N ; ++n) Xre[k] += x[n] * cos(n * k * 2 * PI / N);

    Xim[k] = 0;

    for (n=0 ; n<N ; ++n) Xim[k] -= x[n] * sin(n * k * 2 * PI / N);

    M[k] = sqrt(Xre[k]*Xre[k] + Xim[k]*Xim[k]);
}
```

```
FILE *f = fopen("dftplots.m", "w");

fprintf(f, "n = [0:%d];\n", N-1);

fprintf(f, "x = [ ");

for (n=0 ; n<N ; ++n) fprintf(f, "%f ", x[n]);

fprintf(f, "];\n");
```

```
fprintf(f, "M = [ ");

for (k=0 ; k<N ; ++k) fprintf(f, "%f ", M[k]);

fprintf(f, "];\n");
```

```
fprintf(f, "stem(n,M)\n");

fprintf(f, "xlim([0 %d])\n", N-1);

fclose(f);

return 0;
```

```
}
```