

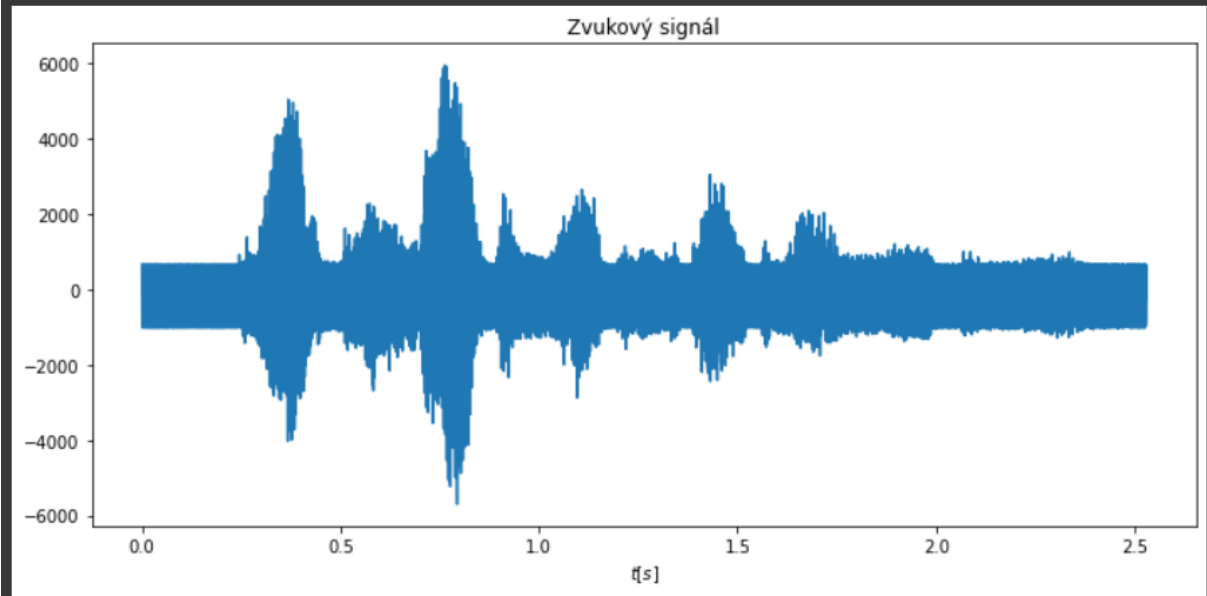


Adrián Horváth xhorva14
7.1.2022

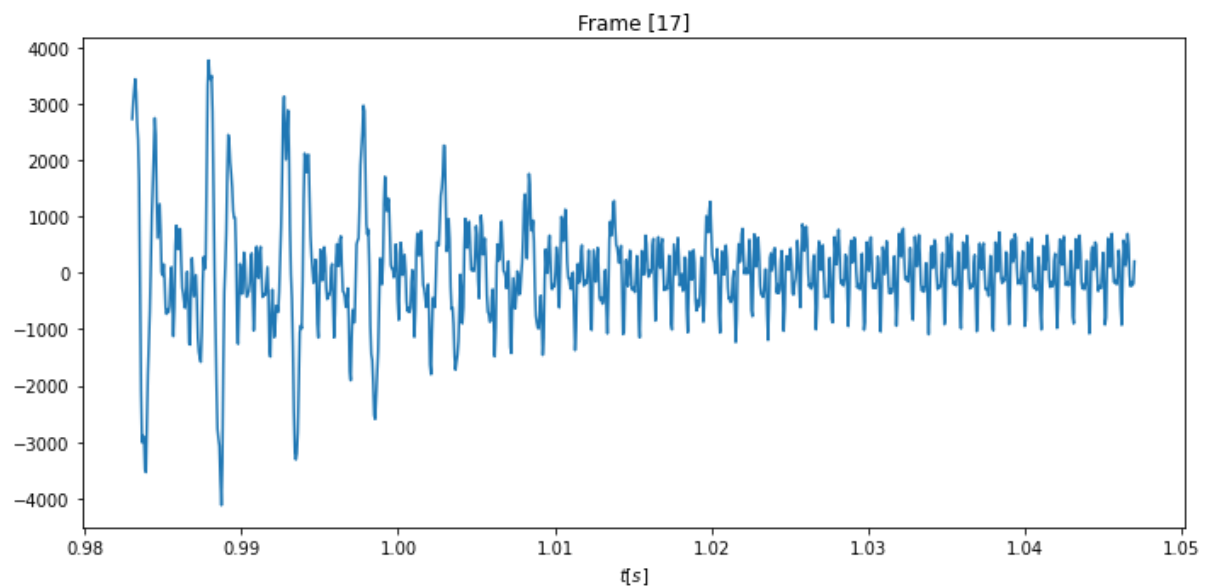
1. Základy

TASK 1

Cas: 2.528 s
Frekvencia: 16000 Hz
Pocet vzorkov: 40448
min = -5700
max = 5952

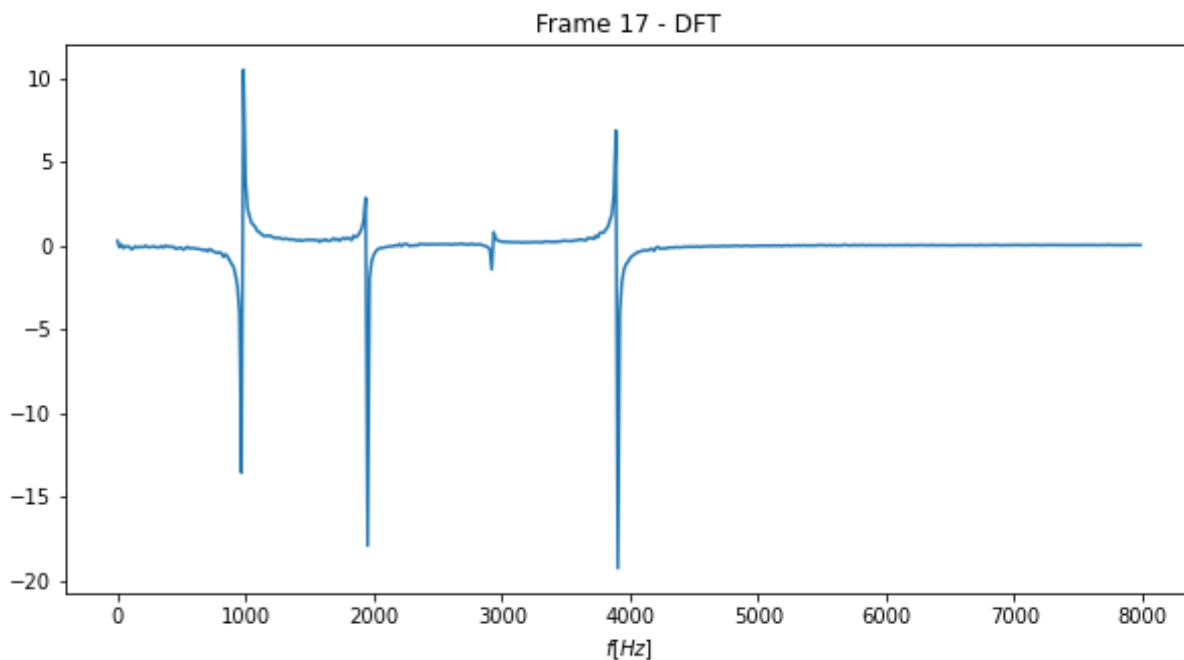


2. Predspracovanie a rámce

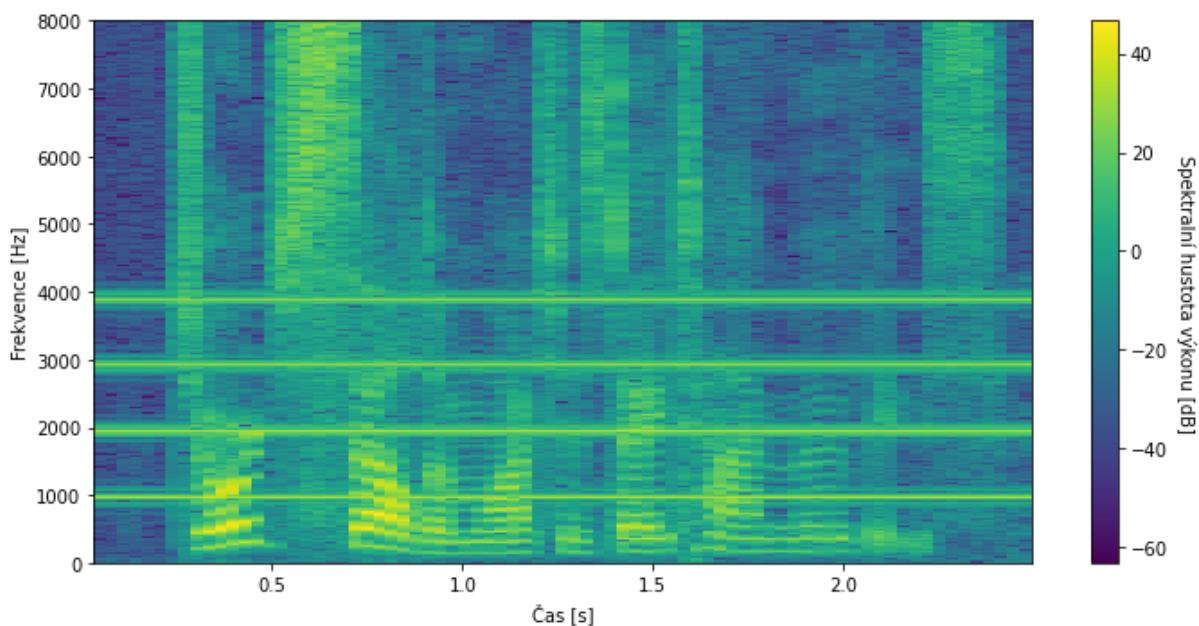


3. DFT

Moja implementácia sa síce podoba knižnej implementácii ale je pomalá tak ju ďalej nepoužívam.



4. Spektrogram

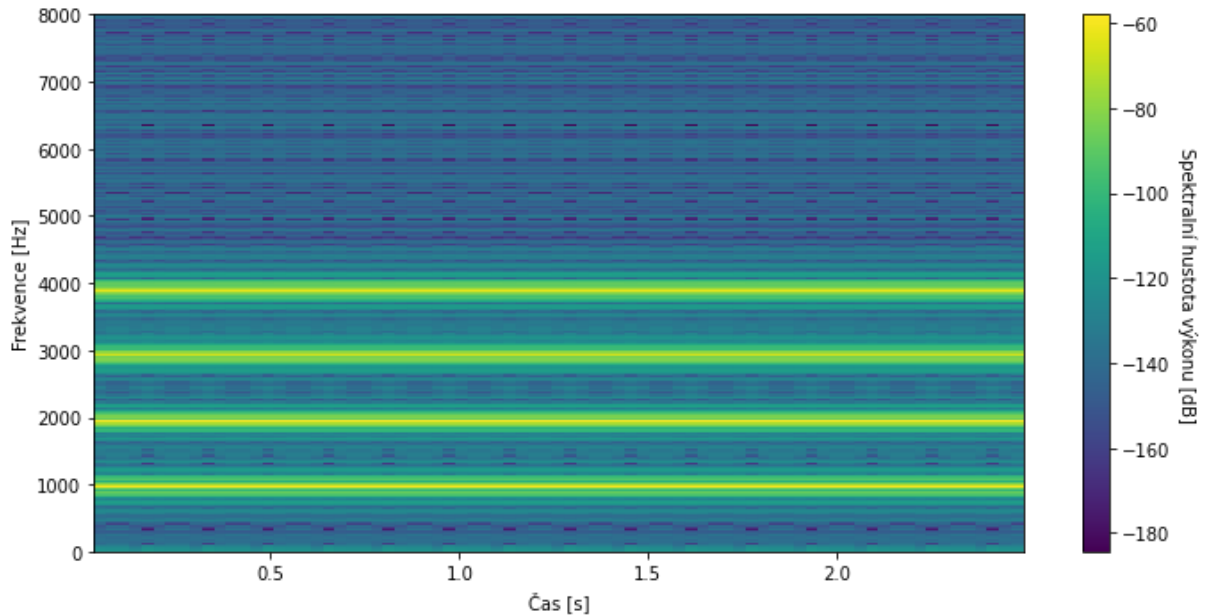


5. Určenie rušivých frekvencií

Rušivé frekvencie som podľa spektrogramu odhadol na násobky okolo čísla 980Hz. No pri čistení som zistil že presná frekvencia je 975Hz a jej násobky (1950Hz, 2925Hz a 3900Hz).

6. Generovanie signálu

Signál je uložený v súbore 4cos.wav

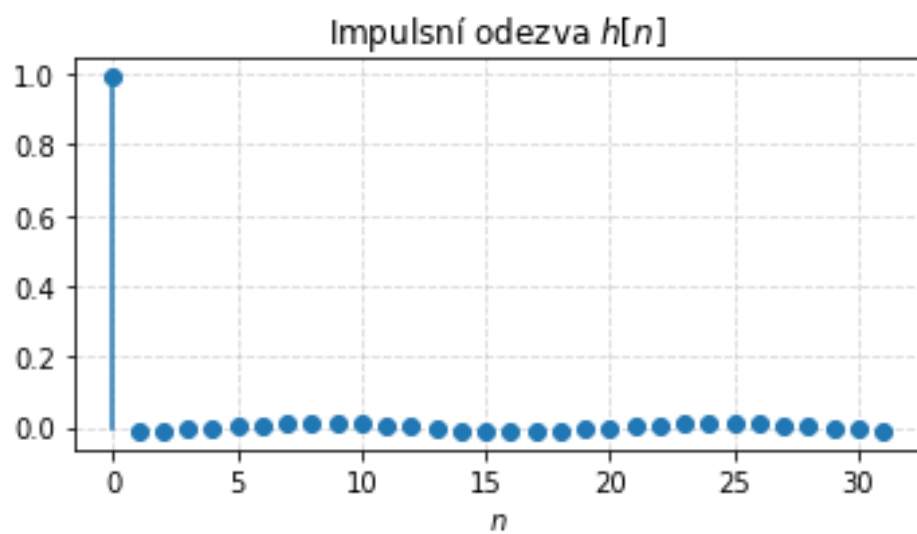


7. Čistiaci filter

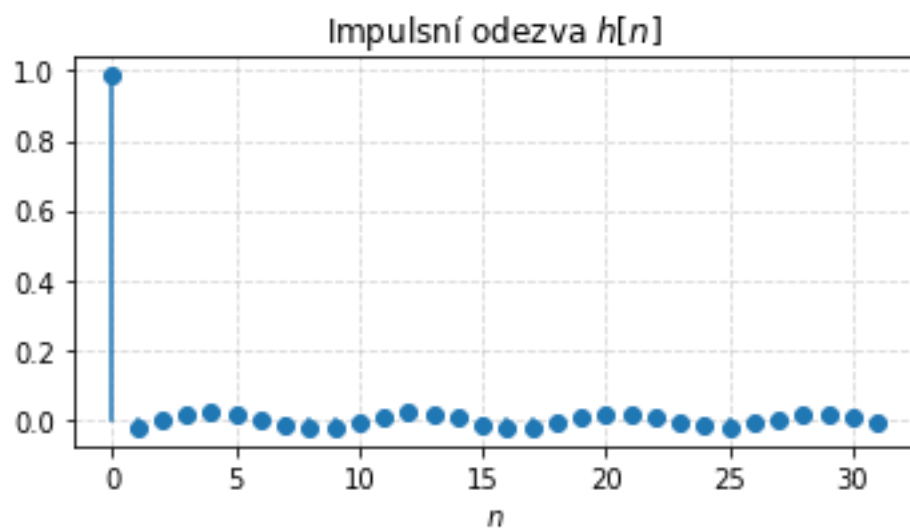
- Výsledný filter sa skladá zo 4 filtrov pásmovej zádrže

```
TASK 7
Koeficienty filtru 1 - A: [ 1.          -1.84342018  0.98731804] B: [ 0.99365902 -1.84342018  0.99365902]
Koeficienty filtru 2 - A: [ 1.          -1.42353799  0.97479488] B: [ 0.98739744 -1.42353799  0.98739744]
Koeficienty filtru 3 - A: [ 1.          -0.80405332  0.96242656] B: [ 0.98121328 -0.80405332  0.98121328]
Koeficienty filtru 4 - A: [ 1.          -0.07656486  0.95020924] B: [ 0.97510462 -0.07656486  0.97510462]
```

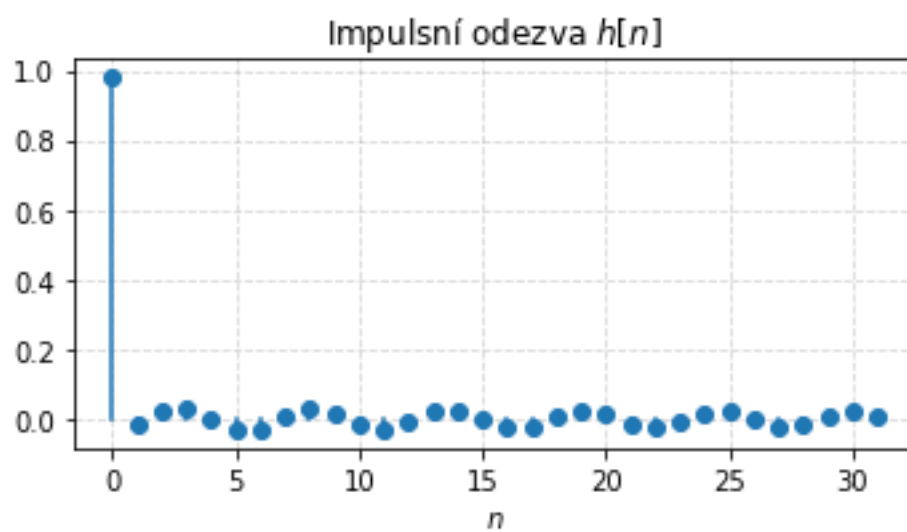
- Filter 1



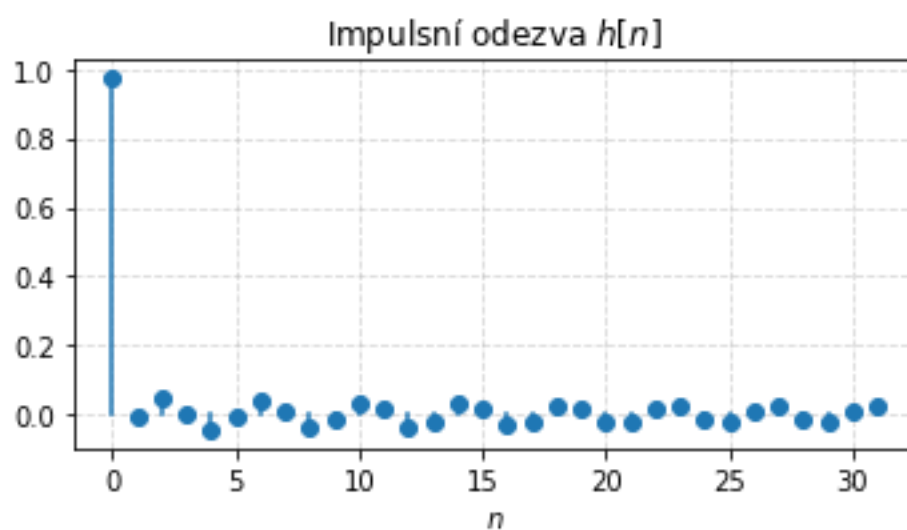
- Filter 2



- Filter 3

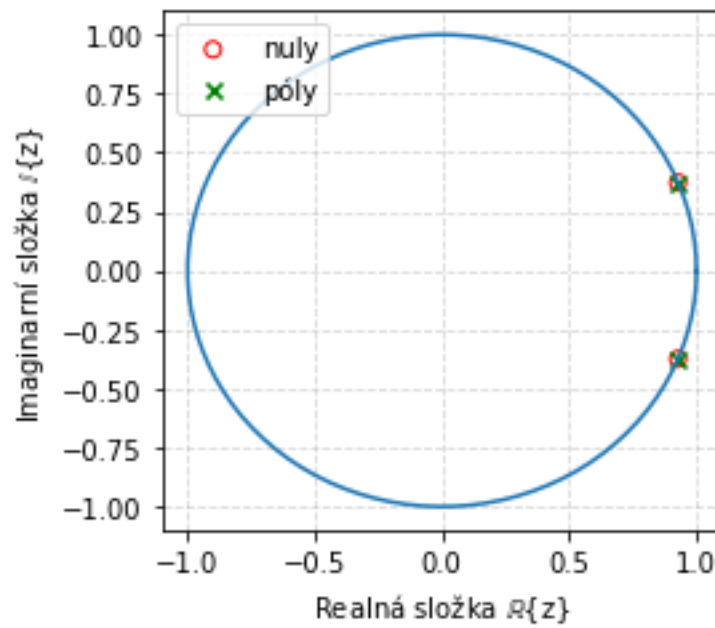


- Filter 4

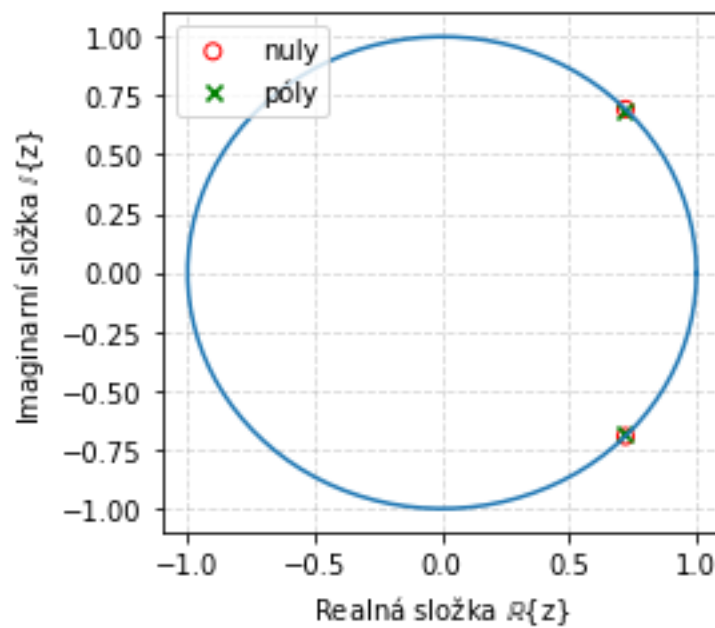


8. Nulové body a póly

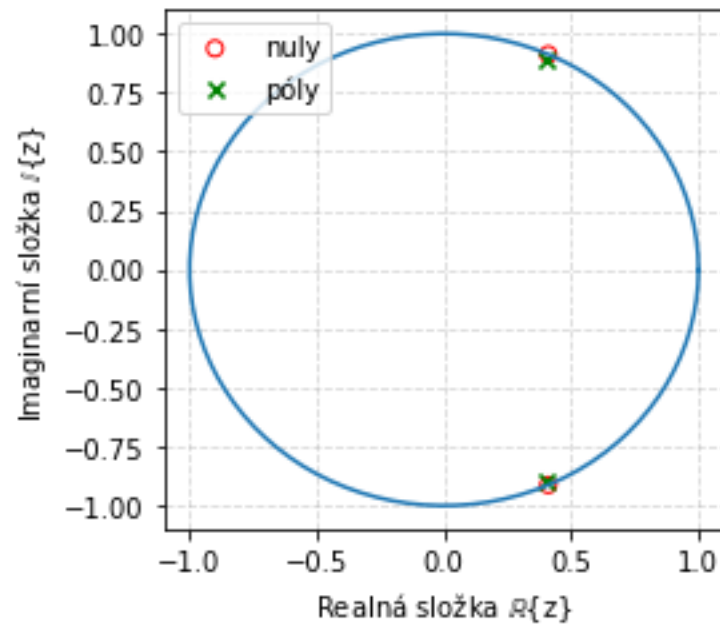
- Filter 1



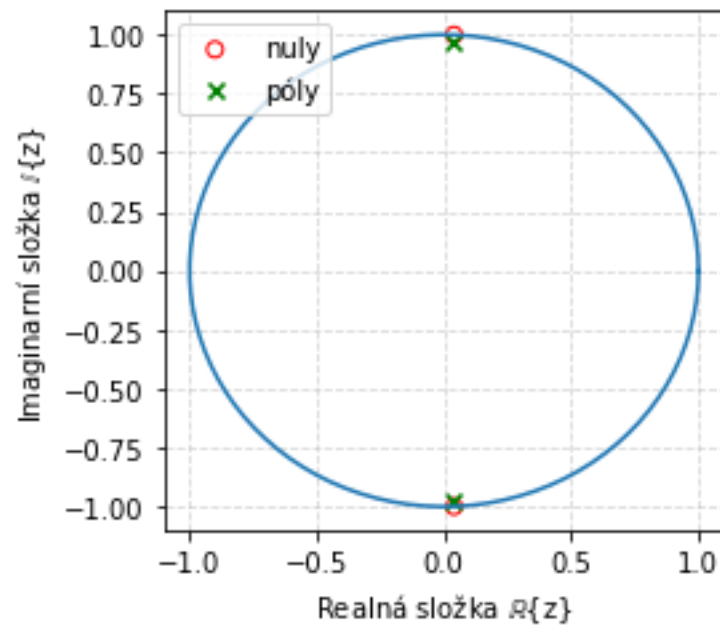
- Filter 2



- Filter 3

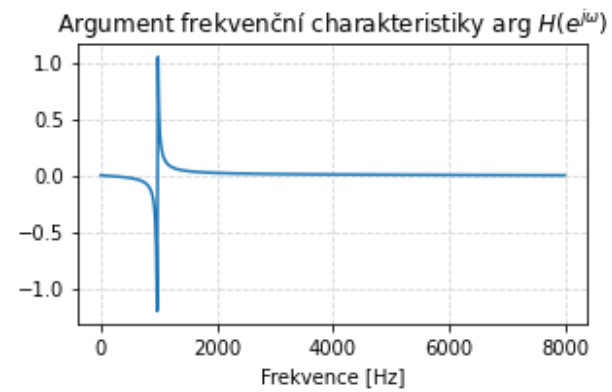
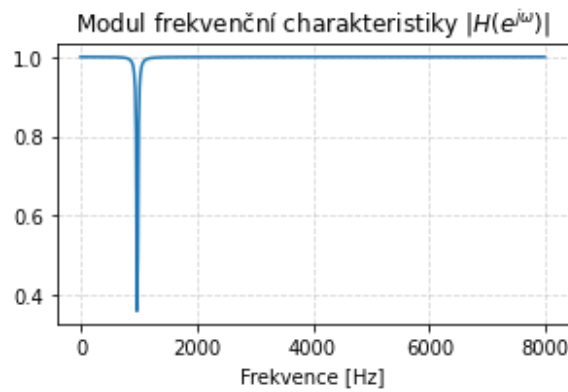


- Filter 4

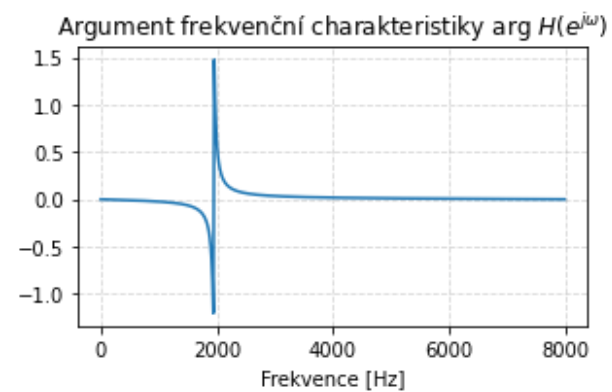
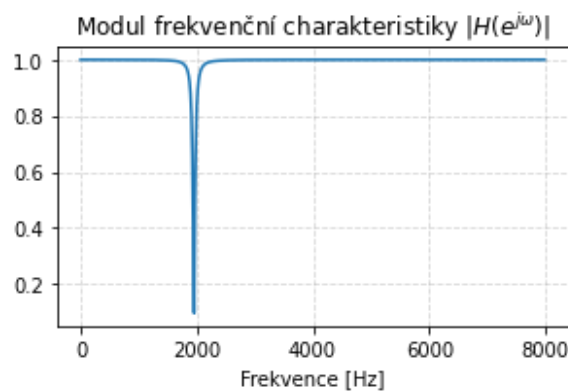


9. Frekvenční charakteristika

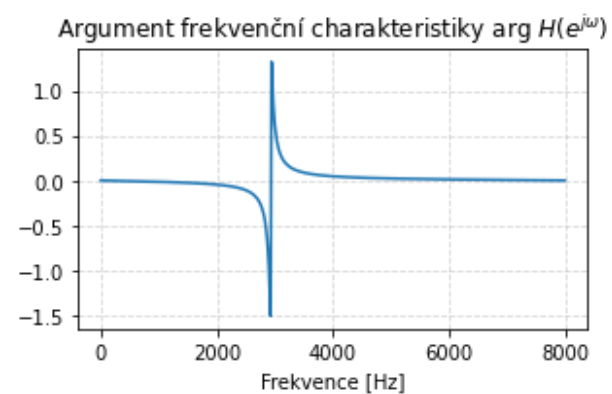
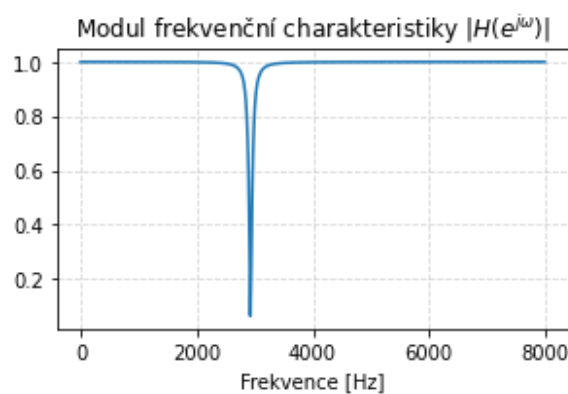
- Filter 1



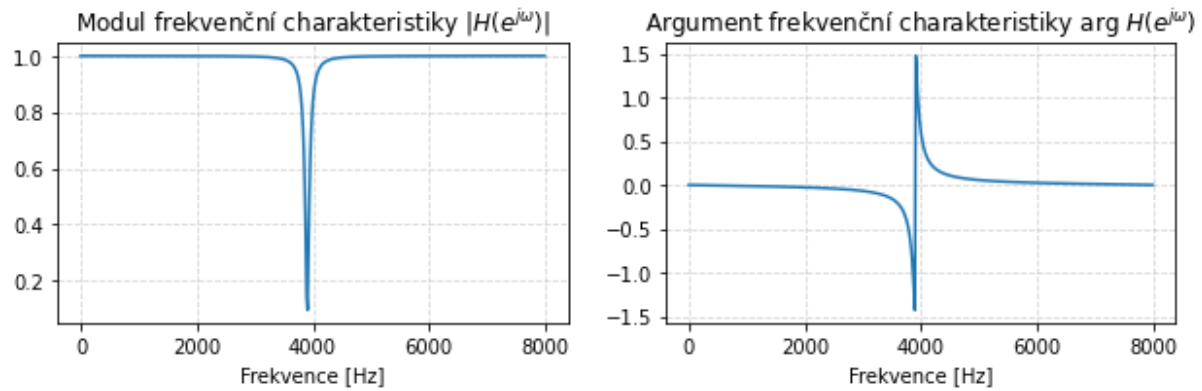
- Filter 2



- Filter 3



- Filter 4



10. Filtrácia

Výsledný signál je uložený v súbore clean_bandstop.wav

