Tarea 10

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Procesamiento de Señales II

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1. Diseñar un filtro IIR utilizando fdatool, filtro pasabajas Chevyshev 1 (rizado banda de paso), $fc = 1200Hz, fr = 2300Hz, Ap = 2dB, Ar = 50dB$.

En la herramienta de *fdatool*, se ingresaron las caracteristicas deseadas del filtro como se indica en la siguiente figura.

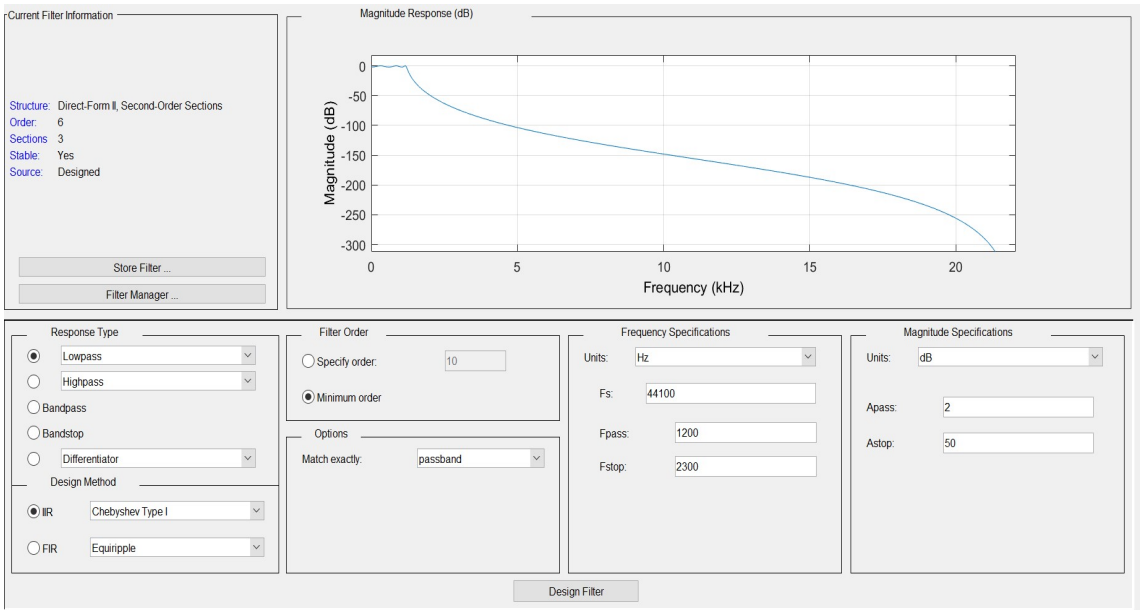

Figura 1: Interfaz Gráfica fdatool.

Al exportar los resultados se obtuvo lo siguiente.

```
% Generated by MATLAB(R) 9.4 and Signal Processing Toolbox 8.0.
% Generated on: 20-May-2020 23:11:37

% Coefficient Format: Decimal

% Discrete-Time IIR Filter (real)
% -------------------------------
% Filter Structure    : Direct-Form II, Second-Order Sections
% Number of Sections  : 3
% Stable              : Yes
% Linear Phase        : No


SOS Matrix:
```

```
1  2  1  1  -1.956188183609503861148937176039908081293  ↩
     0.984138845221757208037161035463213920593
1  2  1  1  -1.941861945163668723424166273616719990969  ↩
     0.957121195896209031594992211466887965798
1  2  1  1  -1.938855655121078047642413366702385246754  ↩
     0.941703247448826830101609175471821799874

Scale Values:
0.006987665403063283812989947563210080261
0.003814812683135056226024772740856860764
0.000711898081937191711671131244543175853
0.794328234724281490031216890201903879642
```

```
clc;clear all;
sos=[1  2  1  1  -1.956188183609503861148937176039908081293  ↩
     0.984138845221757208037161035463213920593;
1  2  1  1  -1.941861945163668723424166273616719990969  ↩
     0.957121195896209031594992211466887965798;
1  2  1  1  -1.938855655121078047642413366702385246754  ↩
     0.941703247448826830101609175471821799874];
[b,a]=sos2tf(sos)
%options = freqzoptions;
%options.FreqUnits = 'Hz';
freqz(b,a,17);
figure(2)
freqz(sos,2000);
```