

MITEQ L-band interdigital bandpass filter FIL-1400-4012 optimized for 1420MHz radioastronomy reception

May 3rd 2024 Matthias DD1US Rev 1.0

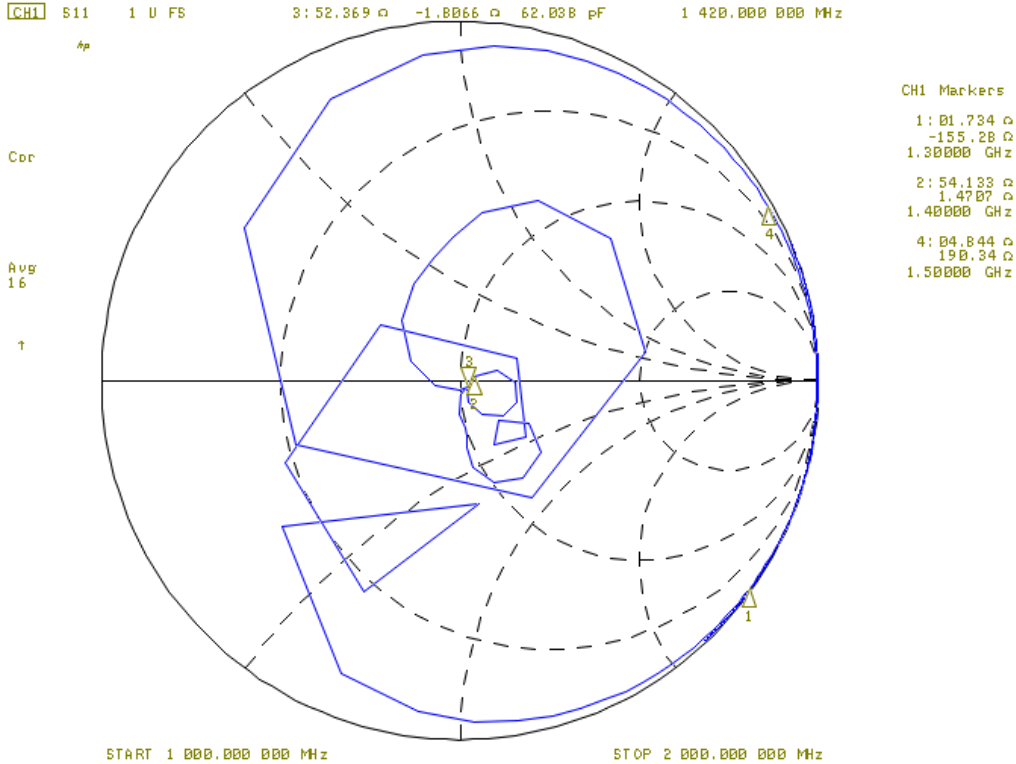
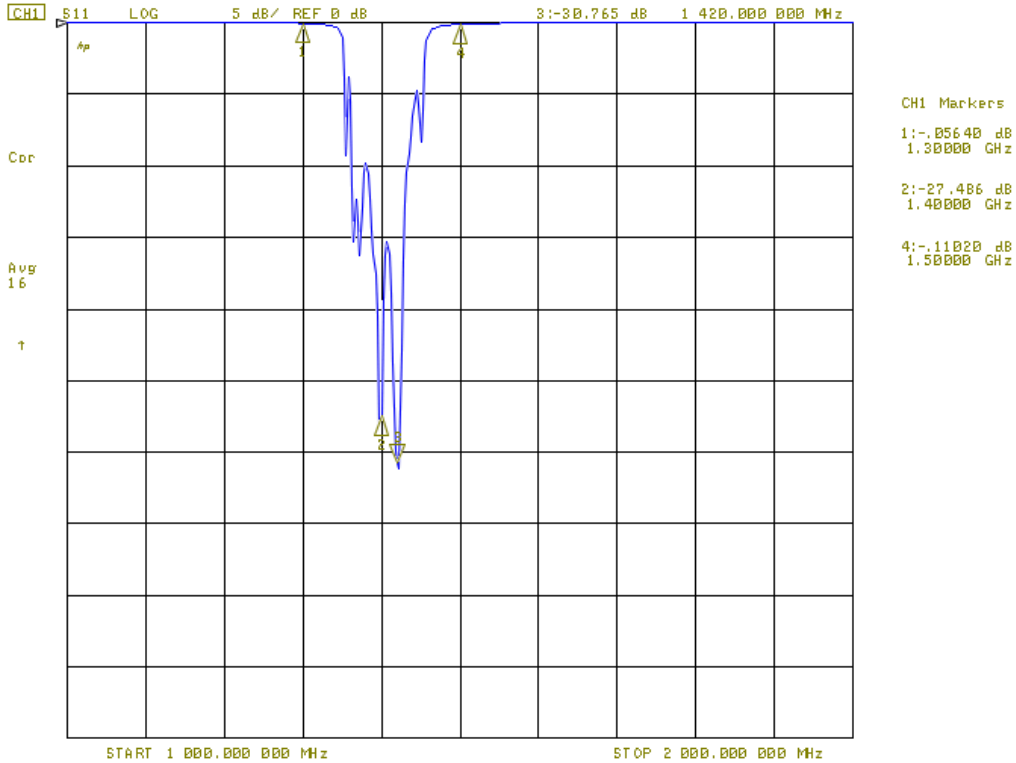
Hello,

I have a MITEQ FIL-1400-4012 bandpass filter. As I intend to use it for radio astronomy reception, I retuned it slightly for 1420MHz. I did not find any data about this filter on the internet but based on the construction of the filter it is an interdigital bandpass filter.

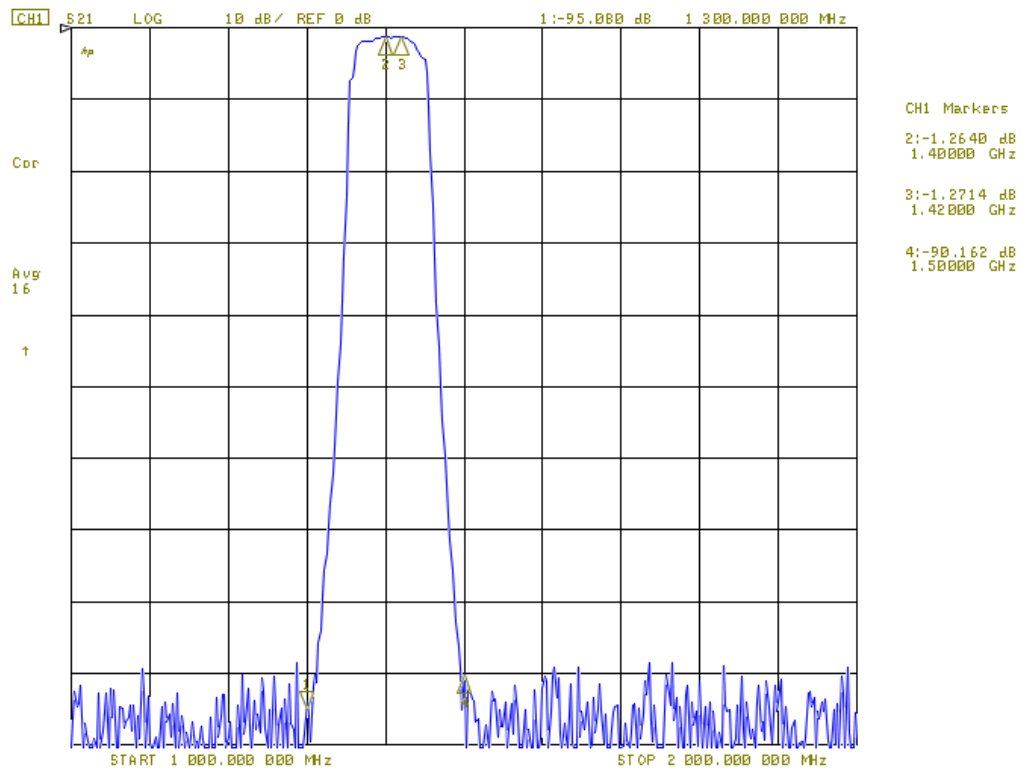
Here are some pictures of the filter:



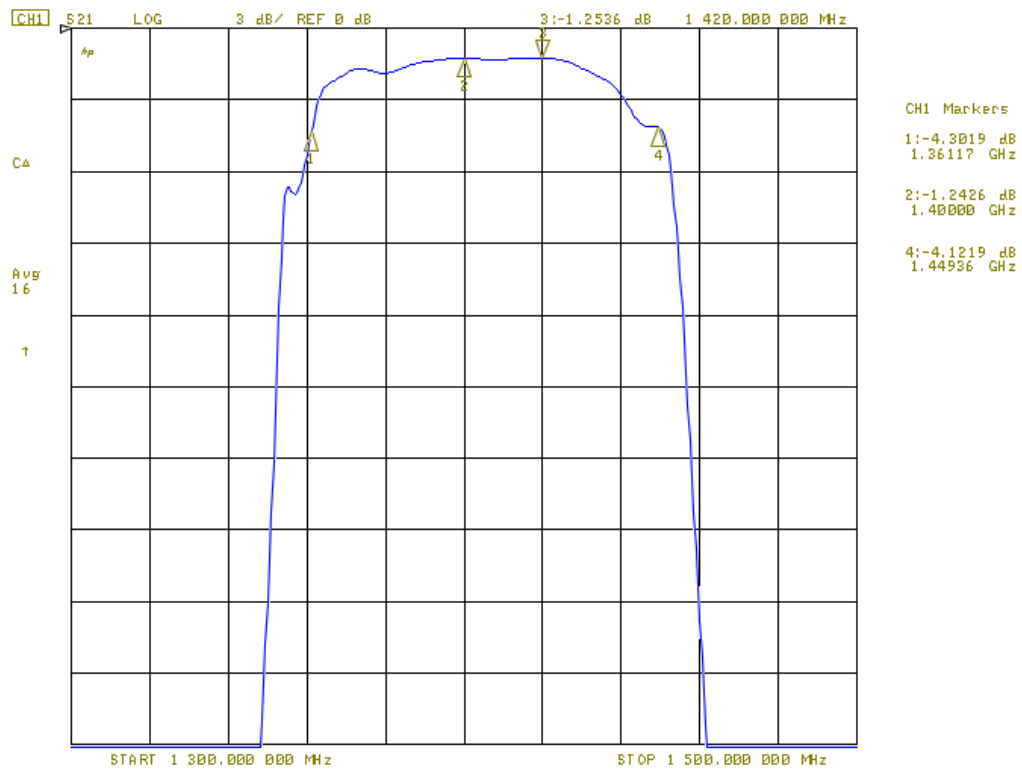
After slightly retuning the filter to center it in order to cover the 1420MHz radio astronomy band I achieved the following data:



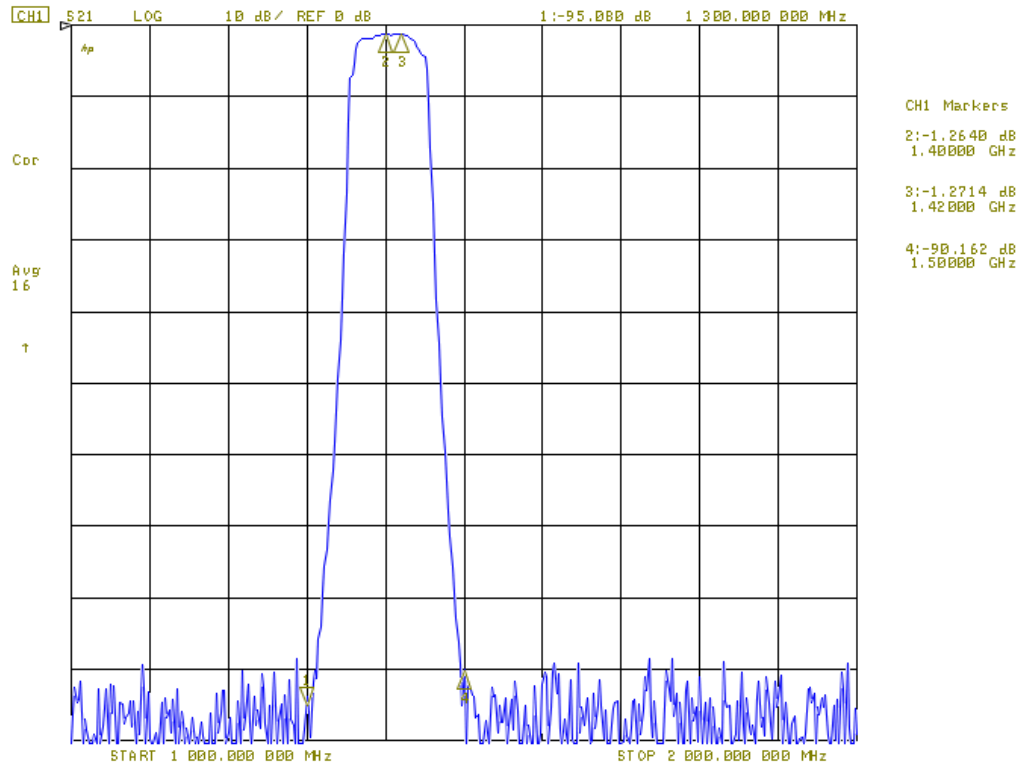
Input return S11 loss is 30dB @1420MHz.



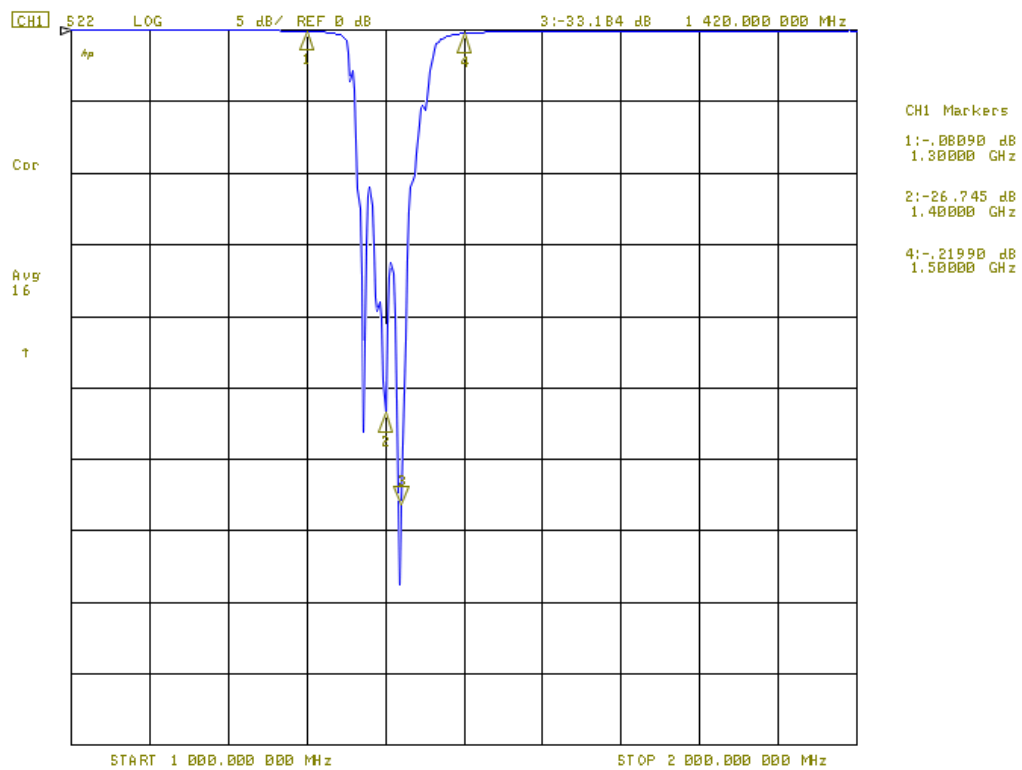
The filter shows an extremely high selectivity with a suppression of more than 90dB of signal below 1300MHz and above 1500MHz.



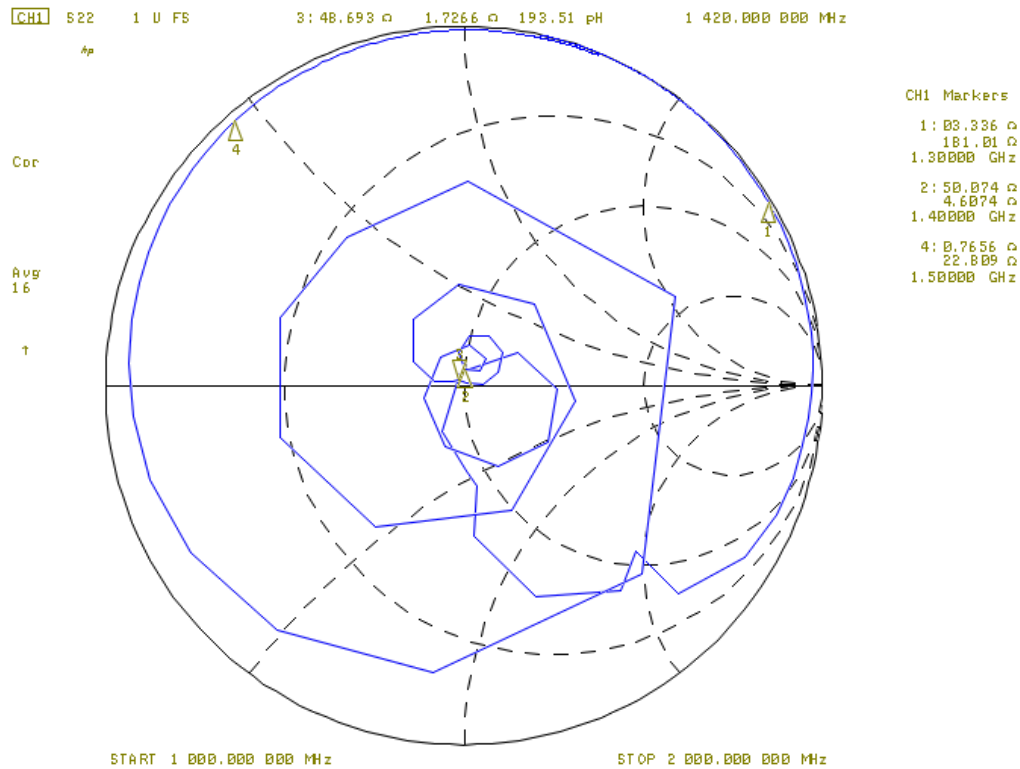
Insertion loss S21 is 1.25dB @1420MHz.



Insertion loss in opposite direction S12 is almost identical to S21.



Output return loss S22 is more that 30dB @ 1420MHz.



Finally, I secured the tuning screws with some tamper proof sealant (BäderIdent).



Retuning the filter to 1420MHz worked very resulting in an insertion loss of less than 1.3dB.

The selectivity of this filter is very nice and should eliminate any possible interference for instance from cellphone signals.

I always appreciate feedback and additional information. Please send them to the Email address given below.

Best regards

Matthias

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