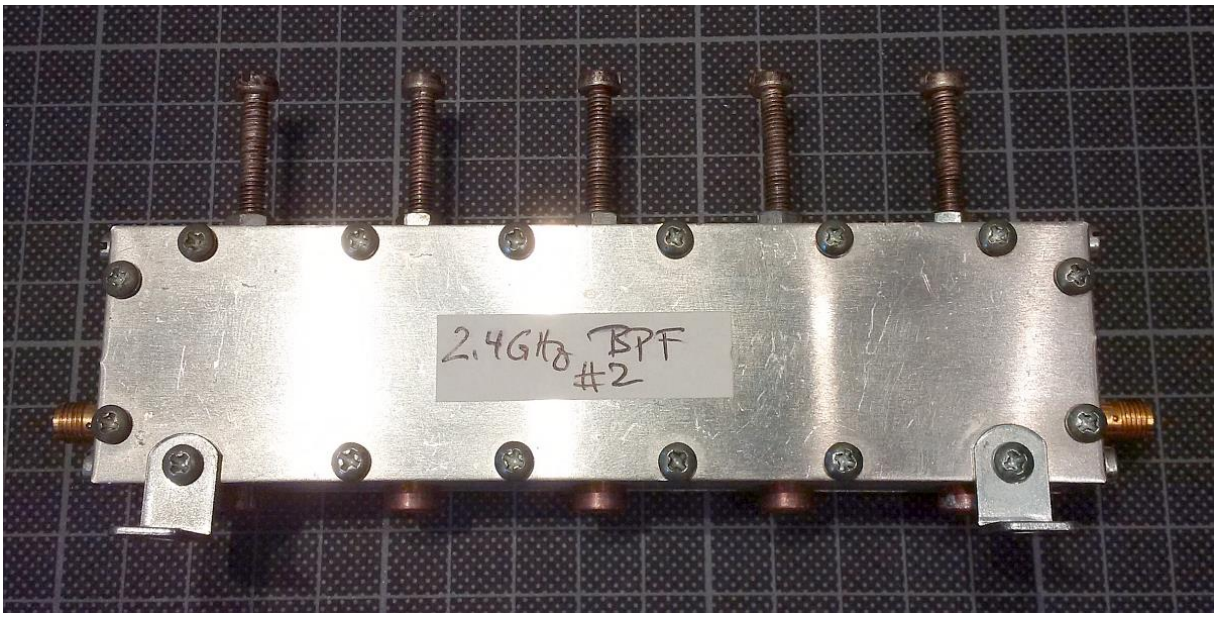
Homebrew 2.4 GHz BPF

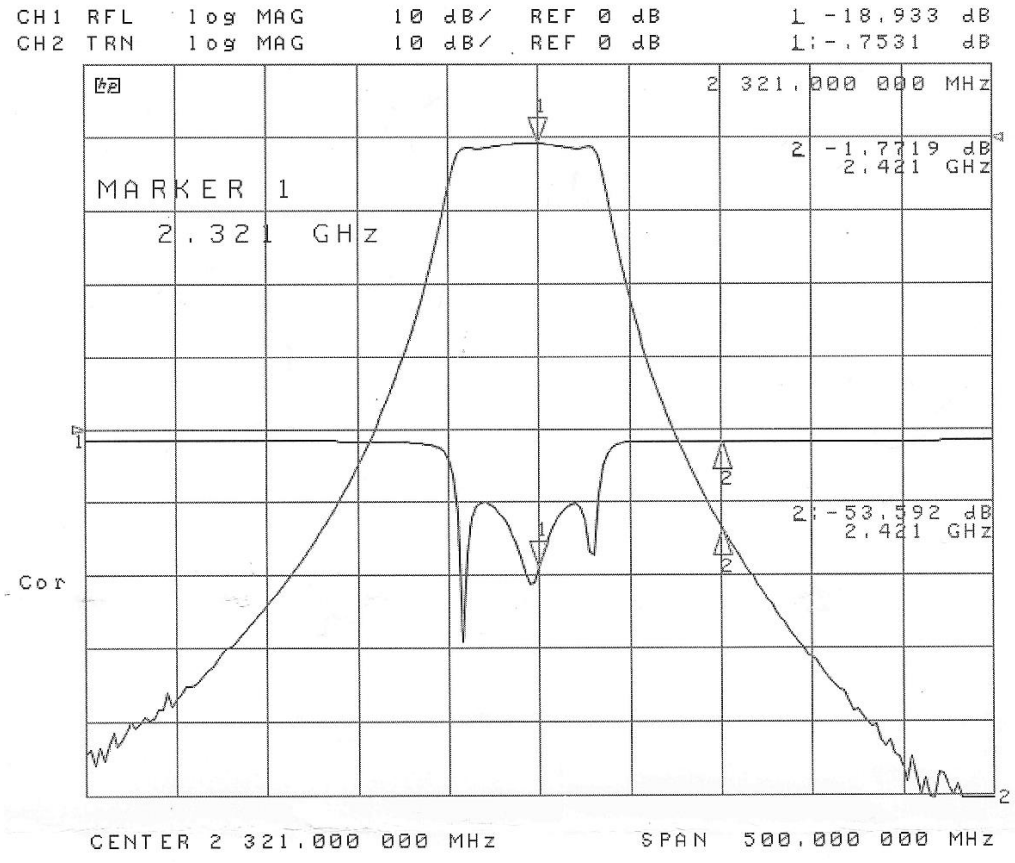
Matthias , DD1US, August 4th 2019

Already quite some time ago I bought a S-band bandpass filter on a flea market. It is apparently homebrew and it was tuned to 2.320 GHz. Working now quite frequently on the QO-100 satellite and planning to increase the output power I thought it would be a good idea to add a bandpass filter in the 2.4 GHz uplink.

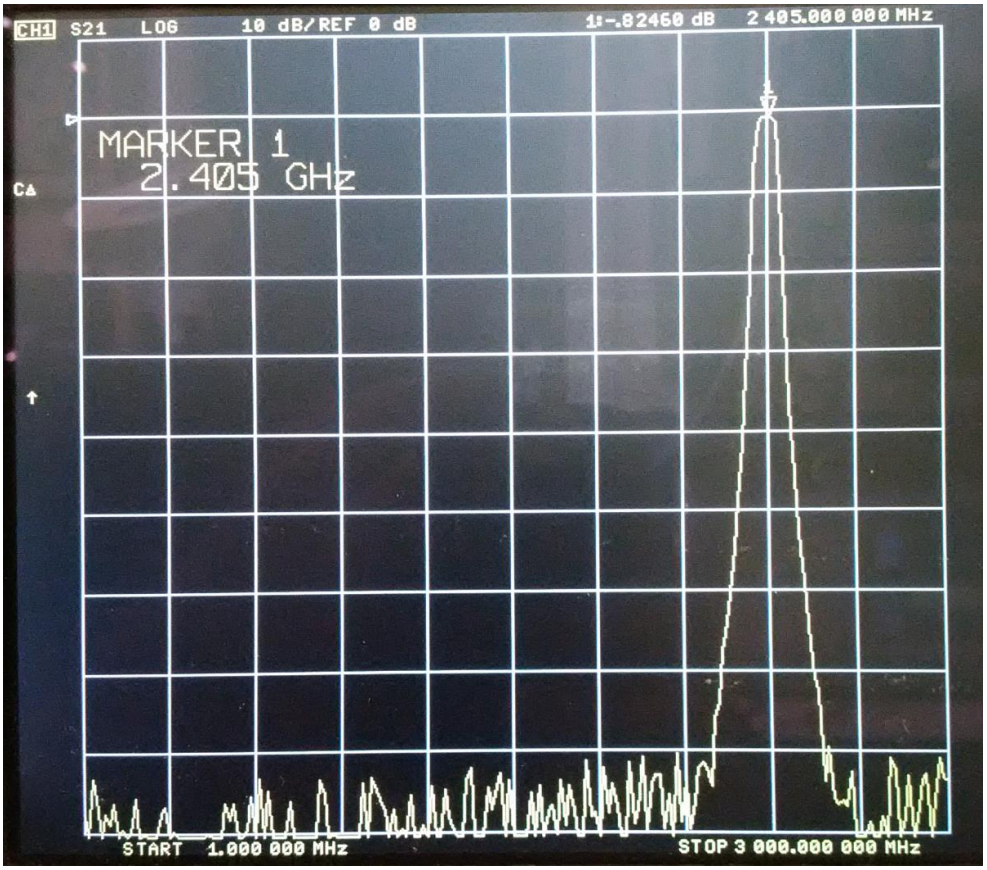
Here are some pictures of the filter:

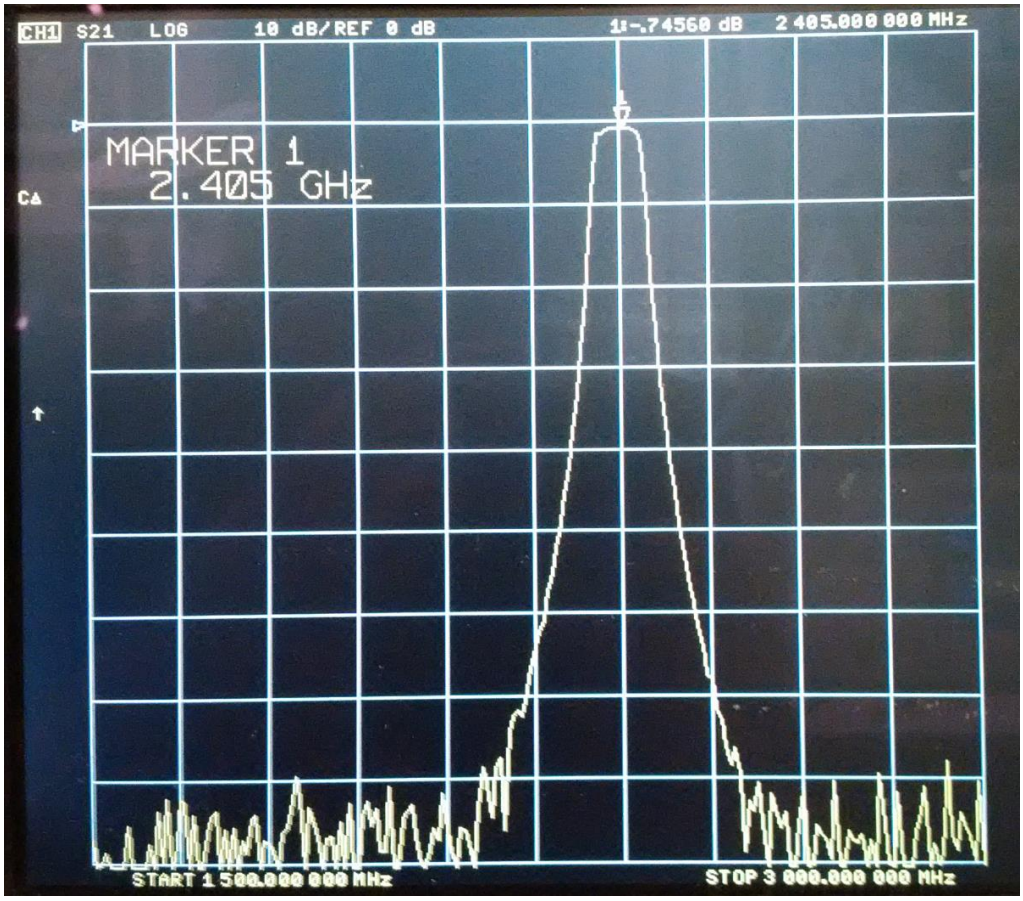


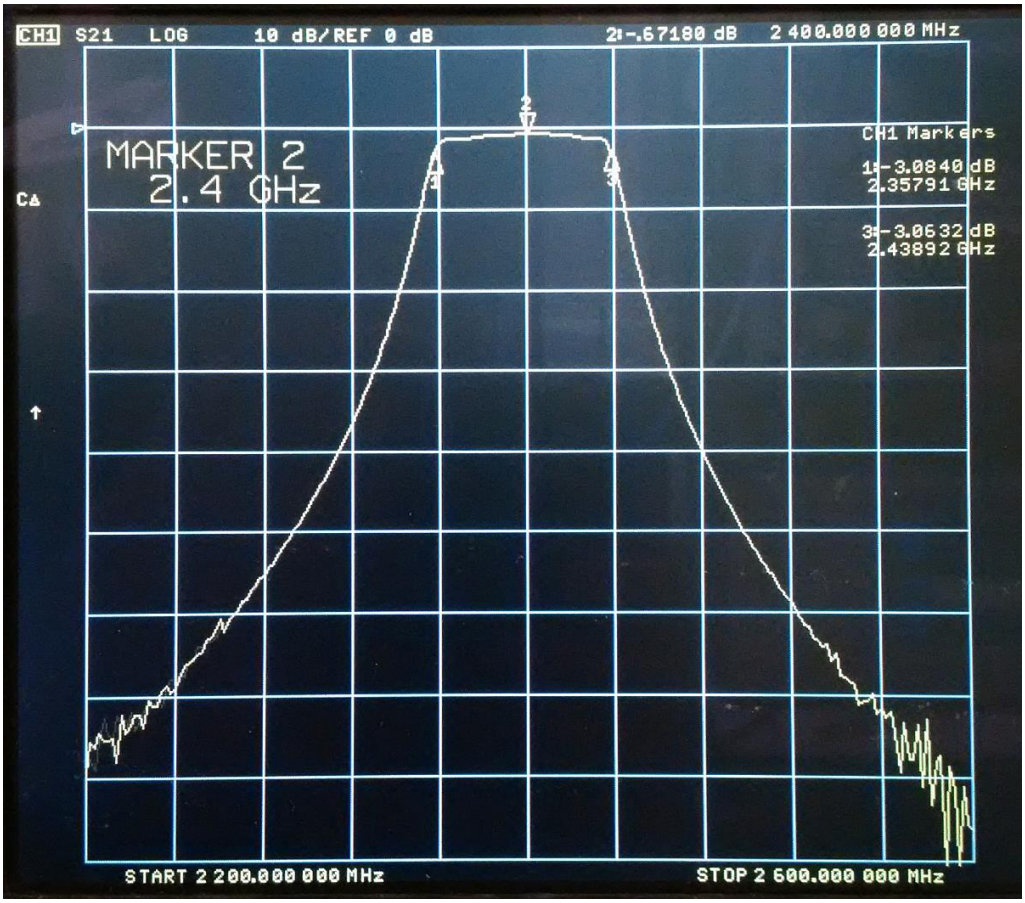
Here is the measurement data I got with the filter when I bought it:

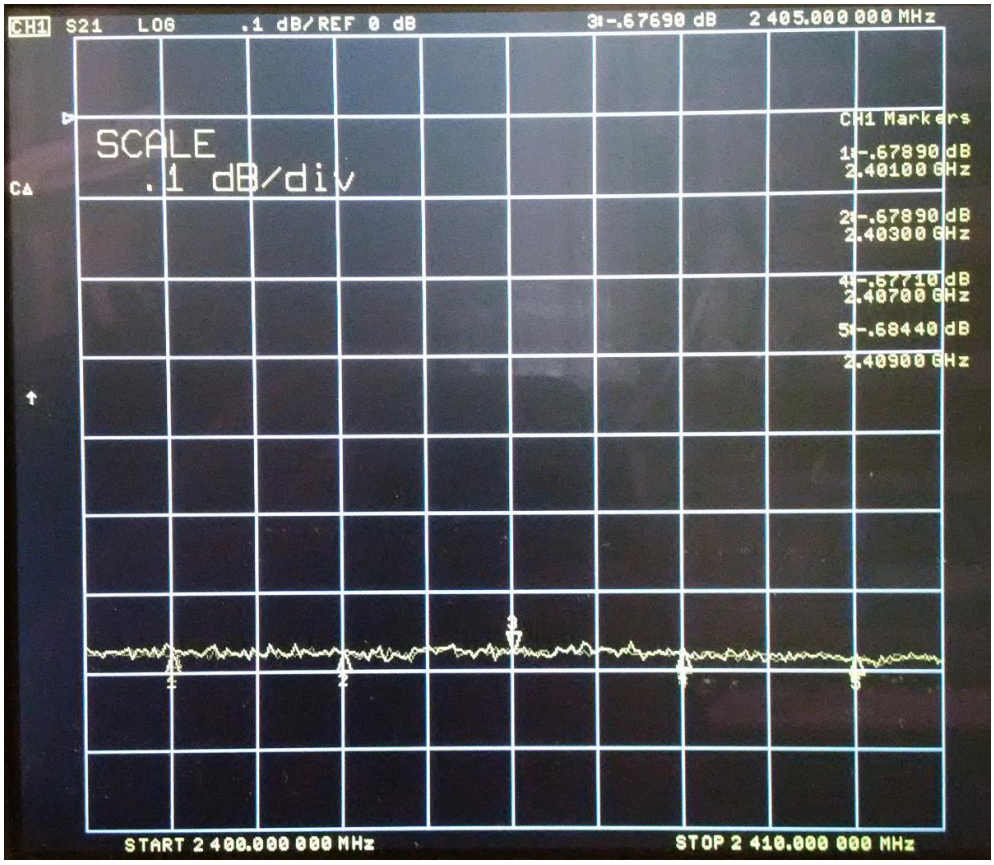


Here is the S21 transfer characteristic after retuning the filter to 2.4 GHz, measured with different spans:



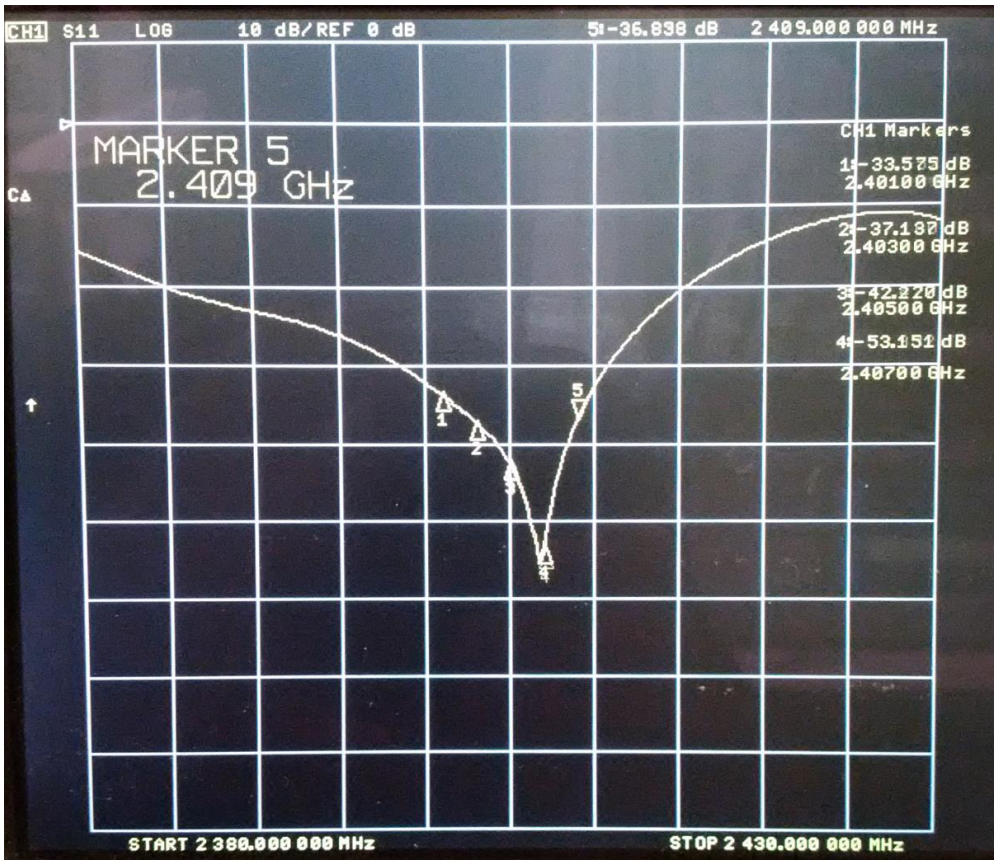


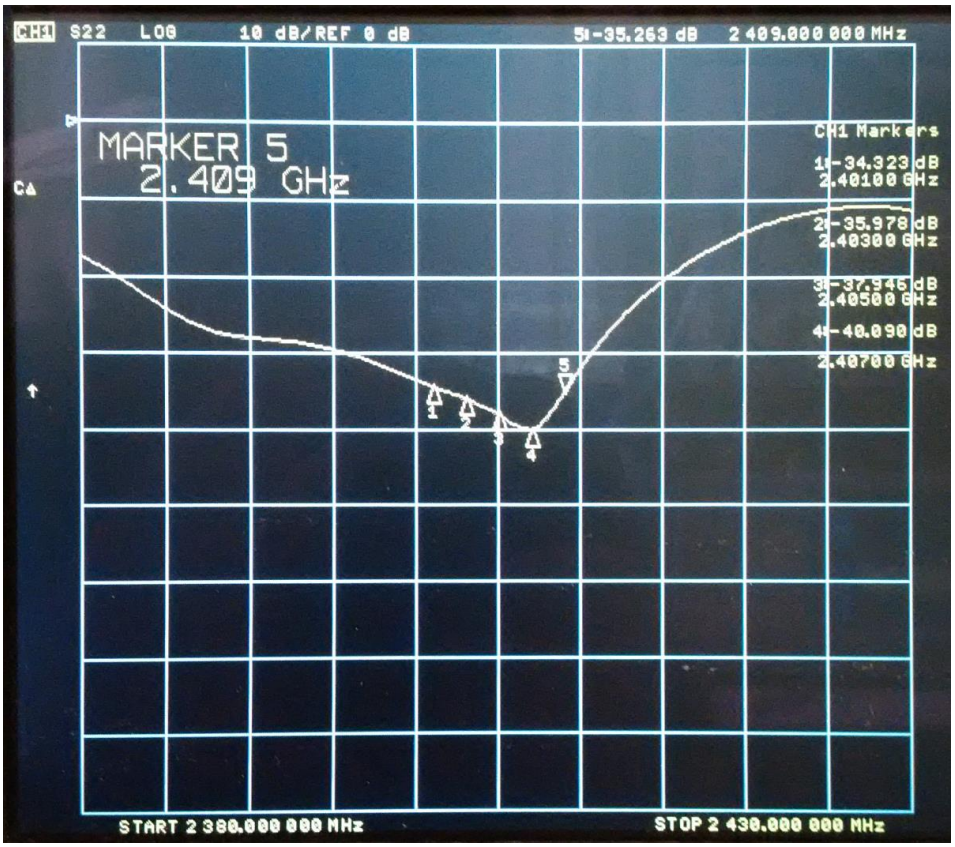




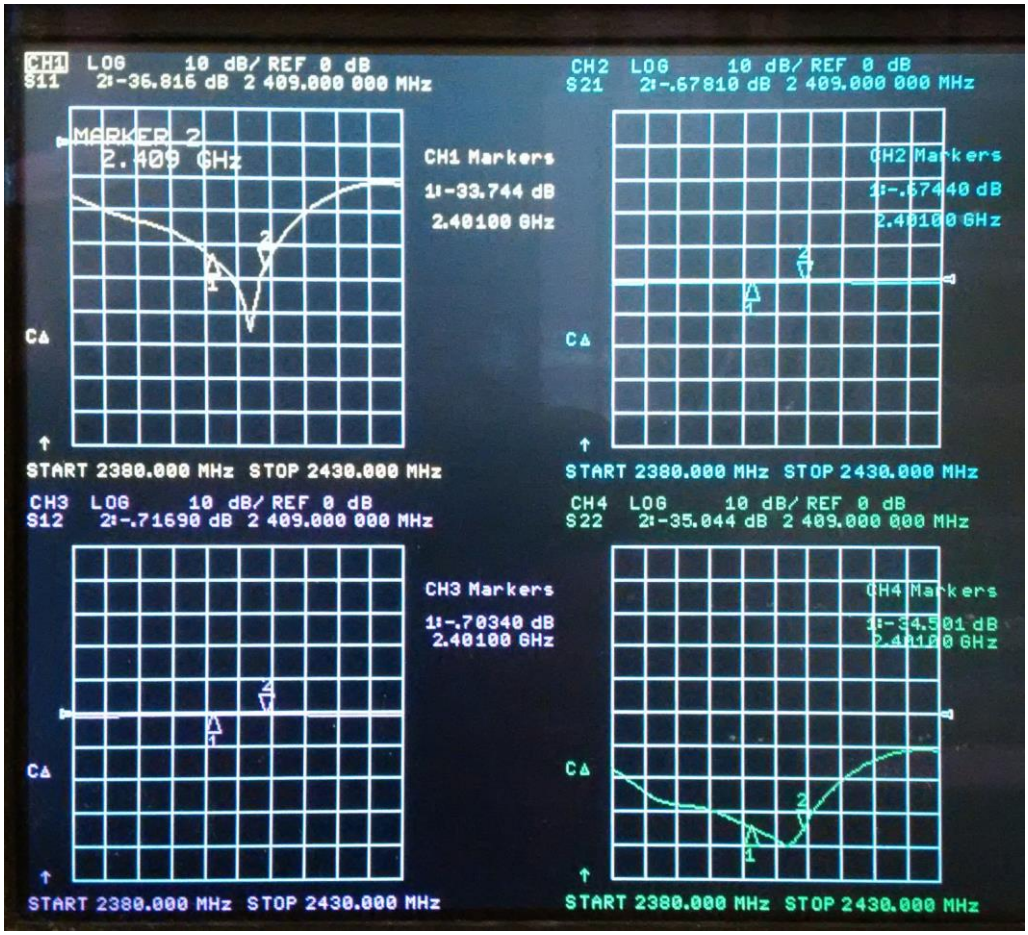
The filter shows a very nice shape. In the passband from 2400-2410 MHz the insertion loss is below 0.7dB.

As shown in the next 2 diagrams the input matching S11 and output match S22 are better than 33dB in the passband:





Here is a summary view:



I always appreciate feedback and will be happy to answer questions. Please send them to the Email address given below. Many thanks in advance.

Best regards

Matthias DD1US

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