

Filtronic 3800 MHz lowpass filter

Matthias, DD1US, December 14th 2020

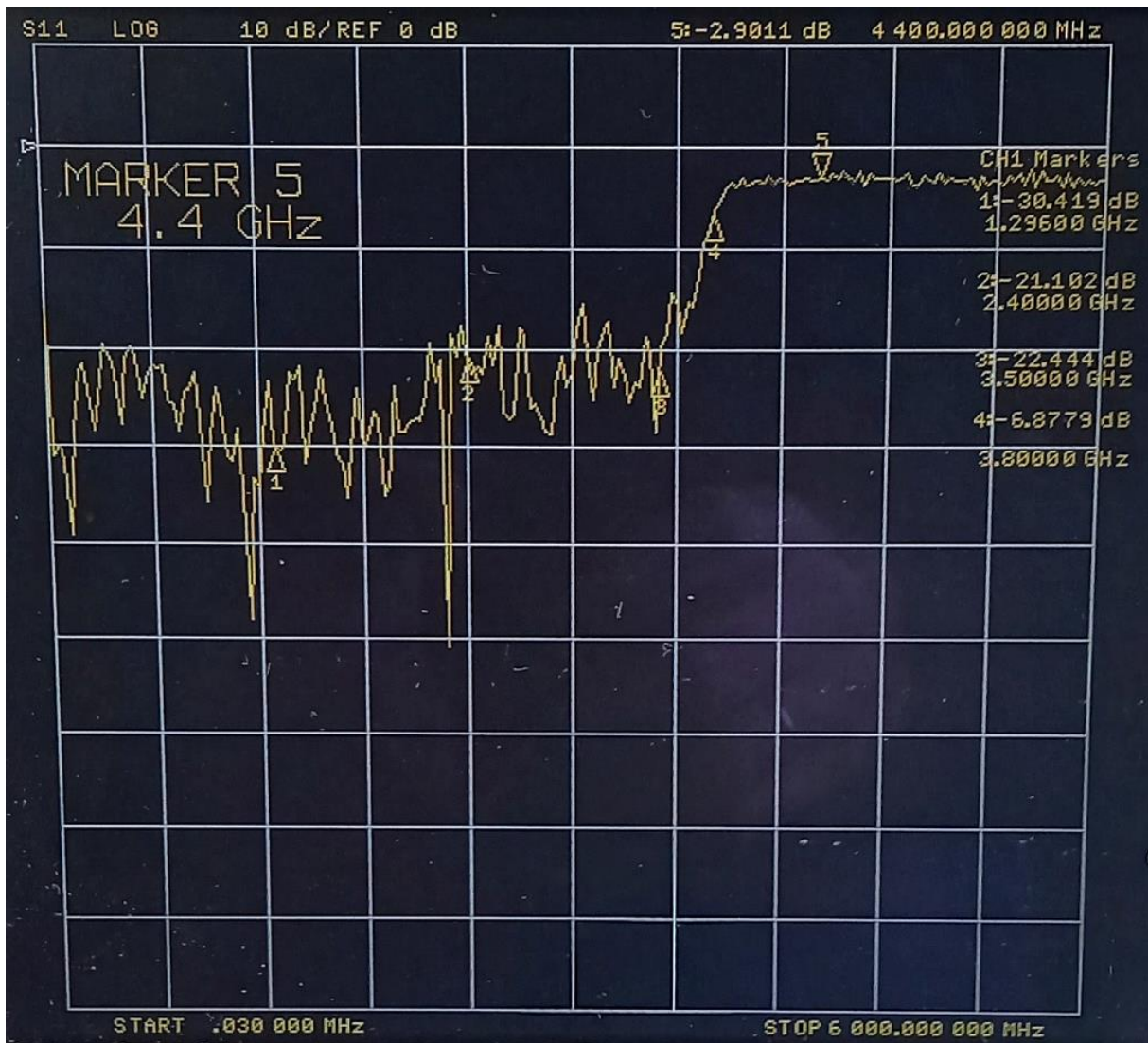
Hello,

I am extending my frequency bands for my EME setup and next shall be the 9cm band. Thus, I was looking for a suitable lowpass filter for my setup and bought second hand a filter from Filtronic. The type is SL 013. Here is a picture of the filter:

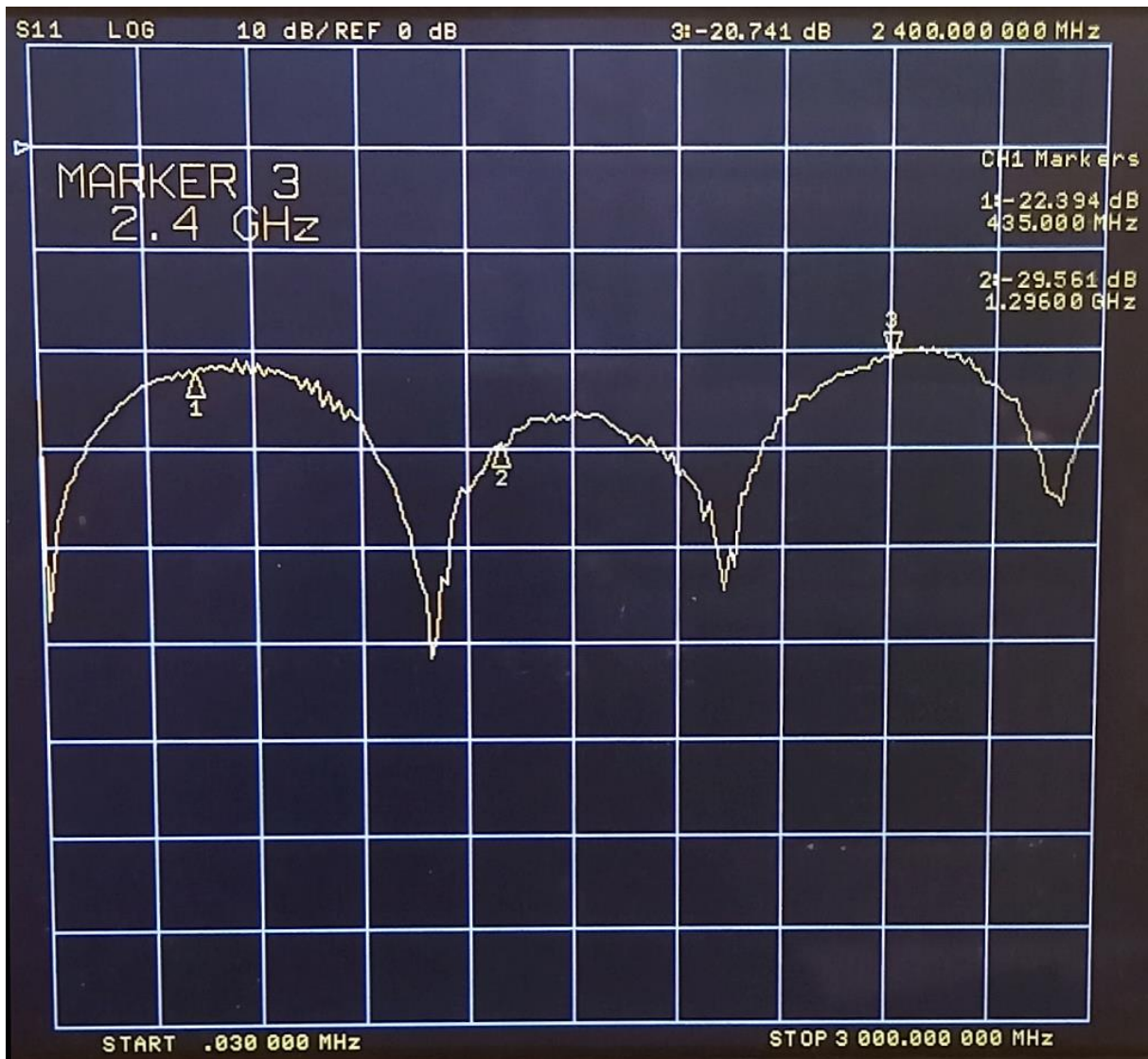


Input and output ports are SMA female connectors and are marked in spite of the effect that I expected the filter to be symmetrical. Besides the code DL 013 there is an identifier AR 50127-519-00-2 printed on the label.

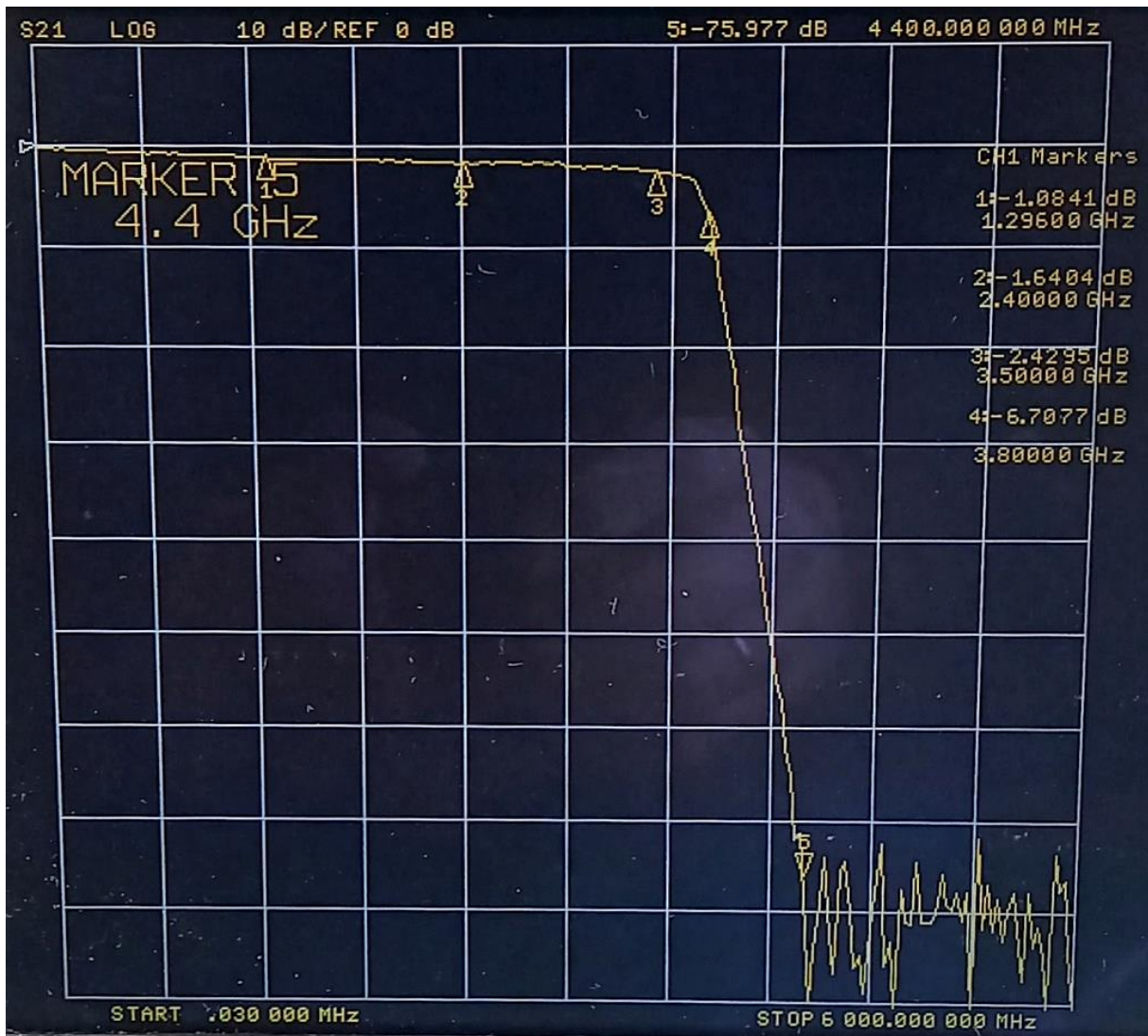
In the subsequent measurements a frequency range from 0.03MHz to 6GHz or from 0.03MHz to 3GHz was used. Please note that for the measurements up to 6GHz the measurement setup was not calibrated. Thus especially the insertion loss in the passband is a bit off. The measurements in the frequency range 0.03MHz to 3GHz were conducted with a properly calibrated setup.



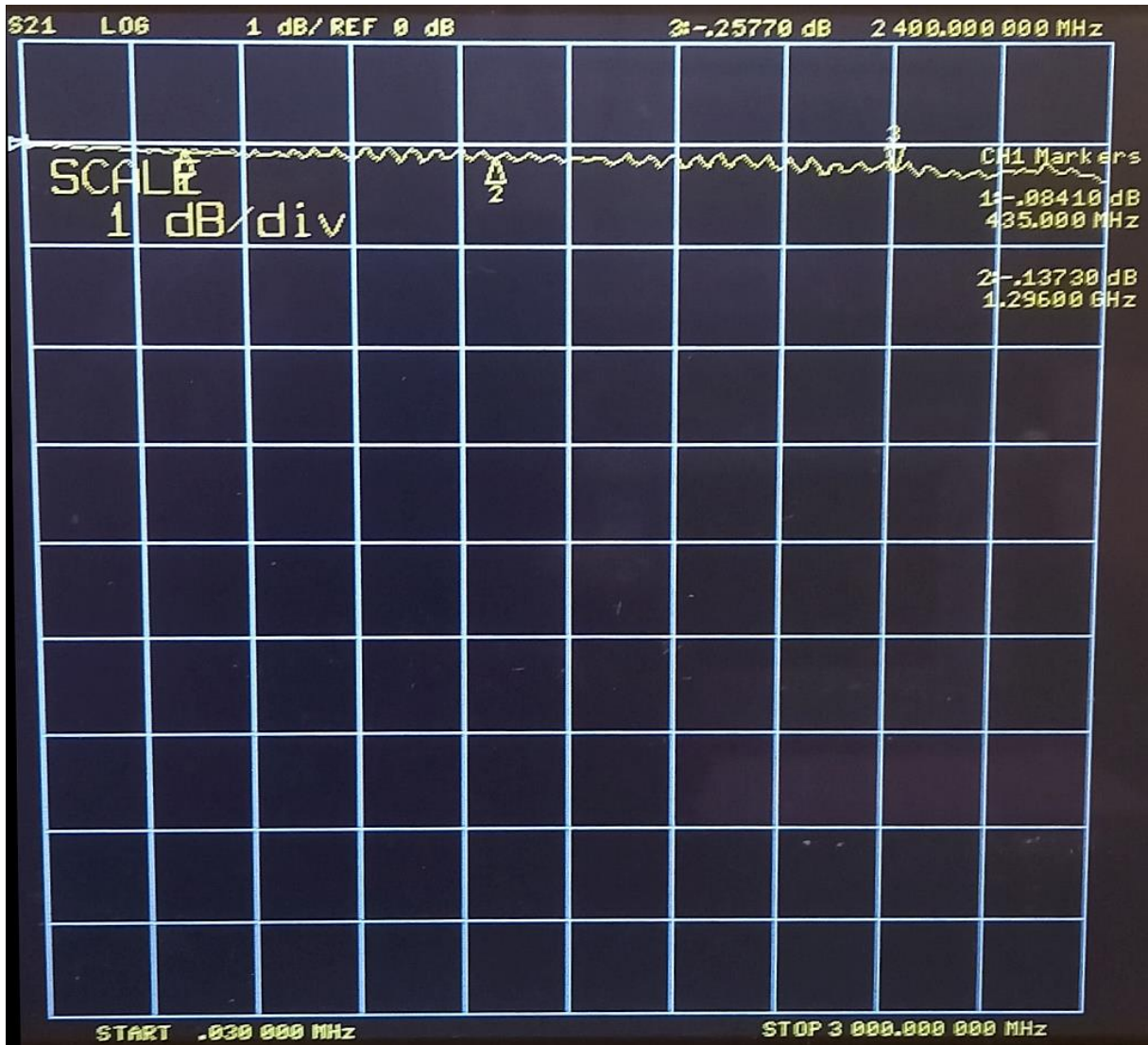
S11 log mag up to 6GHz. Return loss in the passband is more than 20dB including in the 9cm band with 22dB



S11 in the range up to 3 GHz confirms the minimum return loss of 20dB

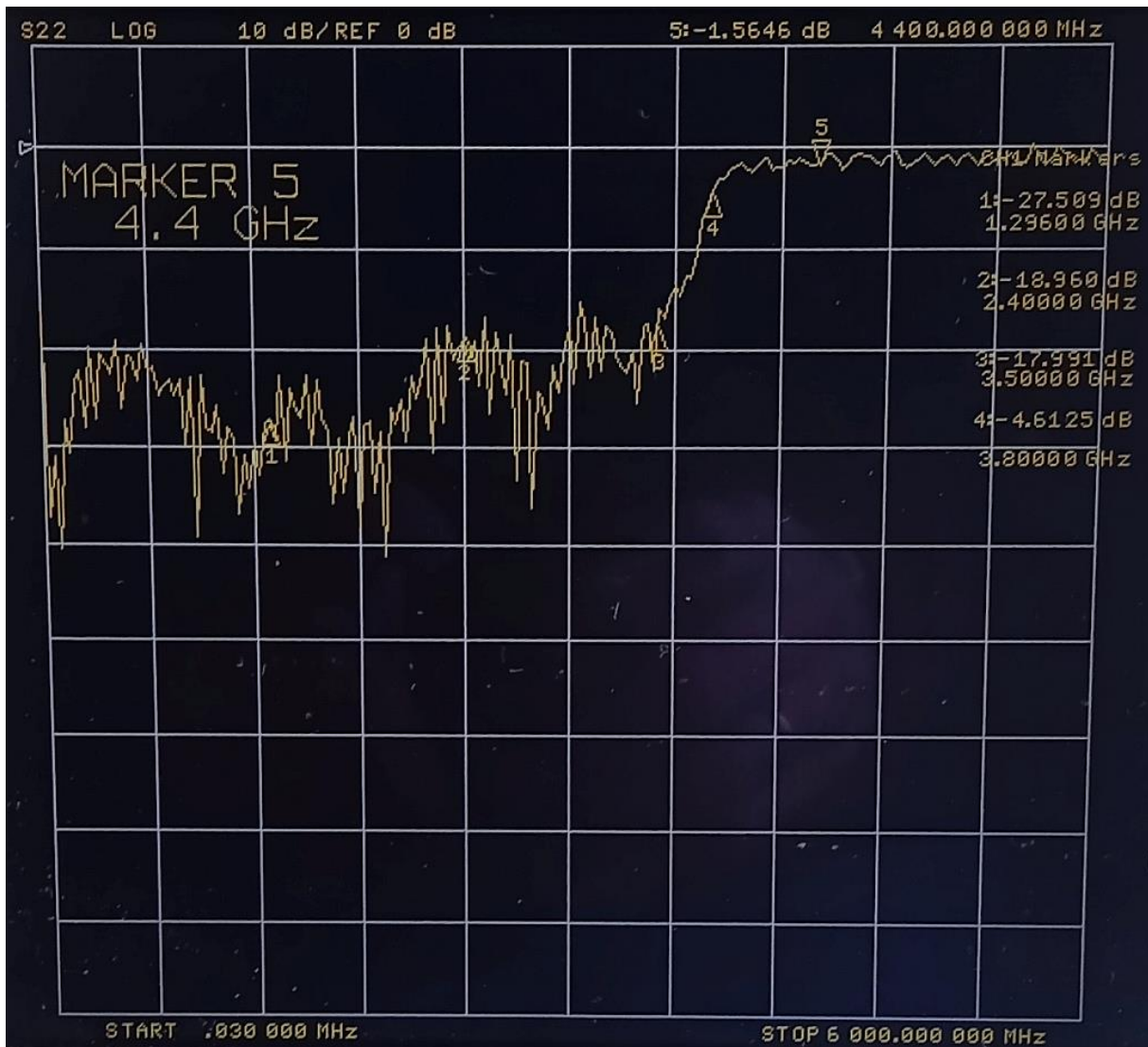


S21 log mag up to 6GHz shows a 3dB corner frequency of the lowpass filter of about 3.7GHz and a very nice steep slope. The rejection at 4.4GHz is already 76dB. As the measurement setup was not calibrated insertion loss values significantly higher than actual are shown. Therefore, better refer to the 3GHz measurement shown next. The measured insertion loss in the 9cm band is estimated to be rather 1dB than 2.4dB as shown in the measurement above.

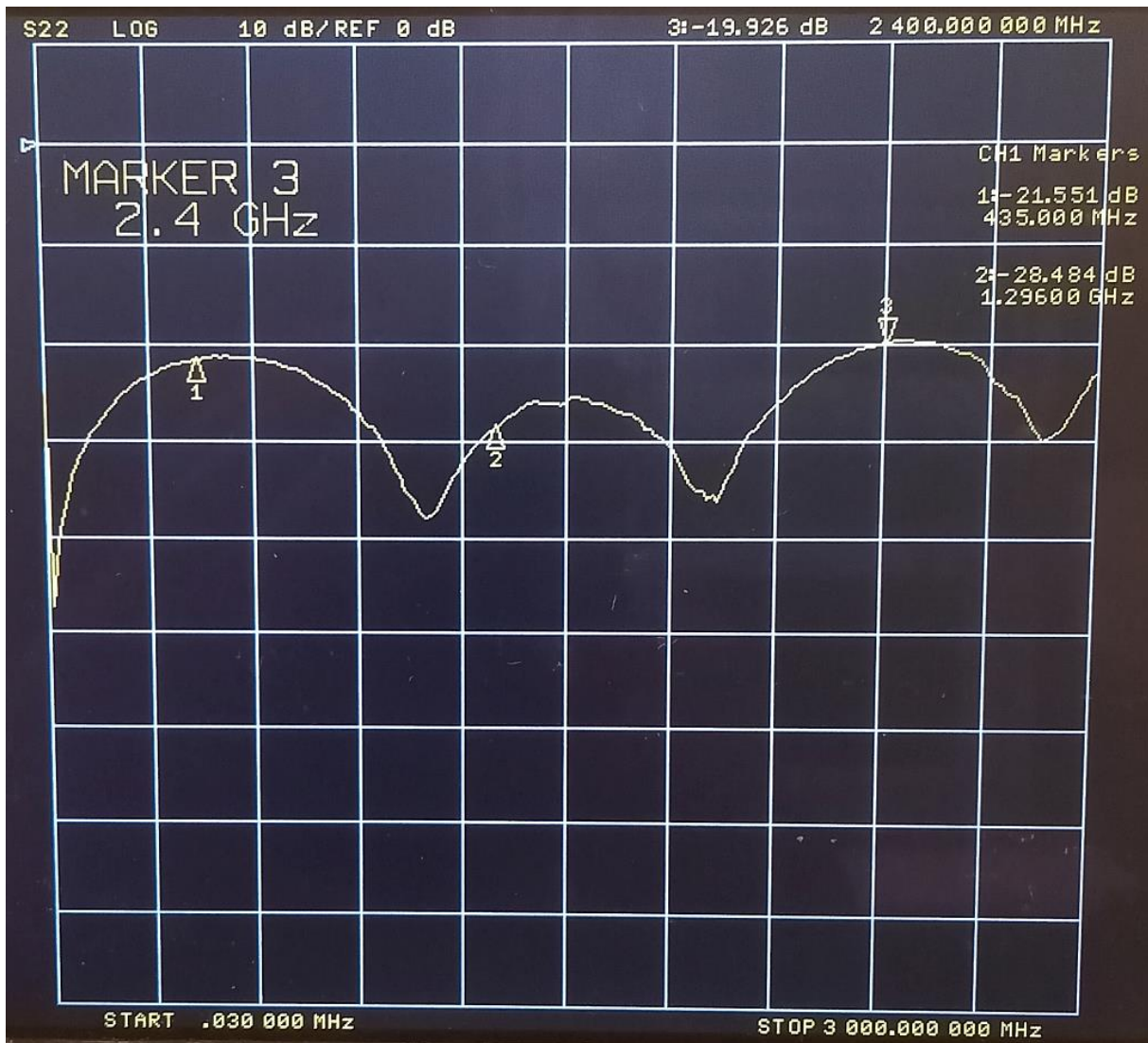


S21 log mag measured in the frequency range up to 3GHz. Insertion losses were measured at:

- 0.08dB @435MHz
- 0.14dB @1296MHz
- 0.26dB @2400MHz



S12 log mag measured up to 6GHz shows a return loss than of 18dB or better and is thus worse than S11



S22 log mag measured up to 3GHz shows a return loss of about 20dB or better as is almost identical to S11

Overall, the performance of the filter meets my expectations. I will measure the insertion loss in the 9cm band using a measurement with a signal generator and precise power meter. This will decide whether I can use it at my transmitter output.

If someone has any data on this filter, I appreciate getting a copy.

I always appreciate feedback. Many thanks in advance.

Best regards

Matthias DD1US

Email: DD1US@AMSAT.ORG
 Homepage: <http://www.dd1us.de>