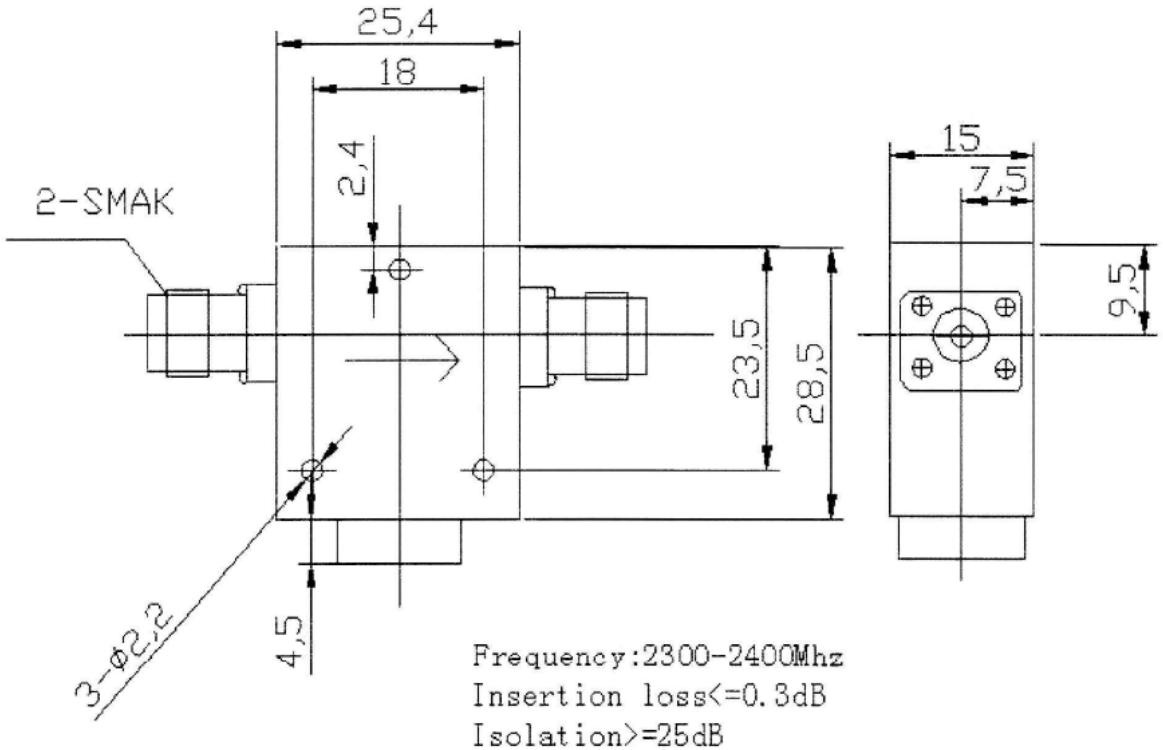
13cm band isolator N70522774 from Xiangyu Communications in China

Matthias, DD1US, updated December 14th 2020

Hello,

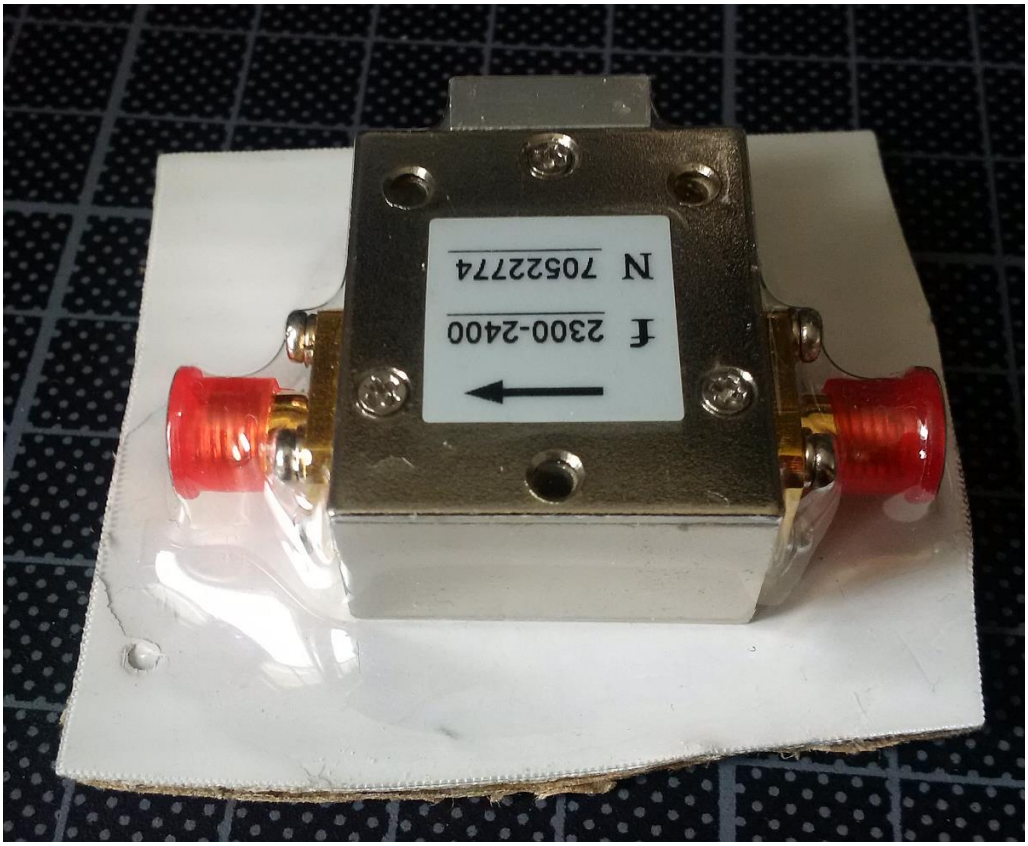
at a recent ham radio flea market, I was able to acquire an unused isolator for the 13cm band for very little money. The unit is from a company called Xiangyu Communincations based in China. The part number printed on the device is: N 70522774.

The sell kindly provided me a datasheet of the device:



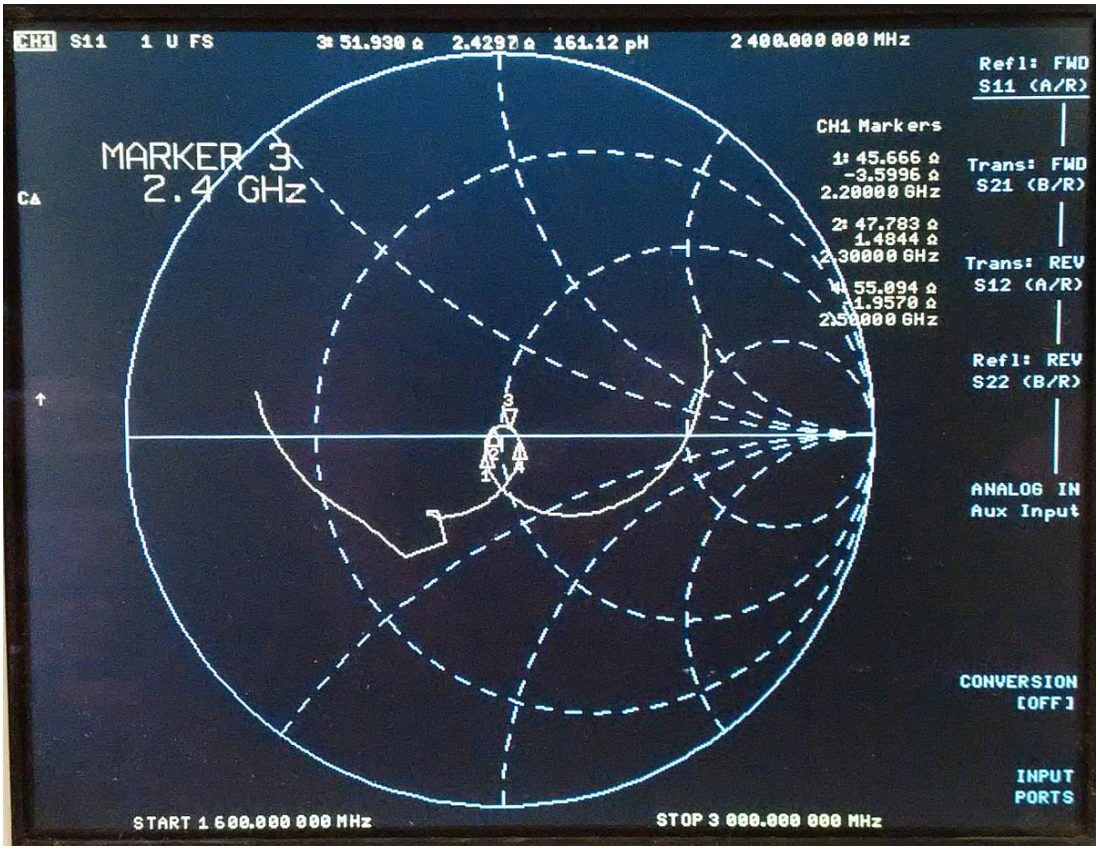
The isolator has female SMA connectors at the input and output port. It is specified to handle 20W in CW mode.

Here are some pictures of the isolator:

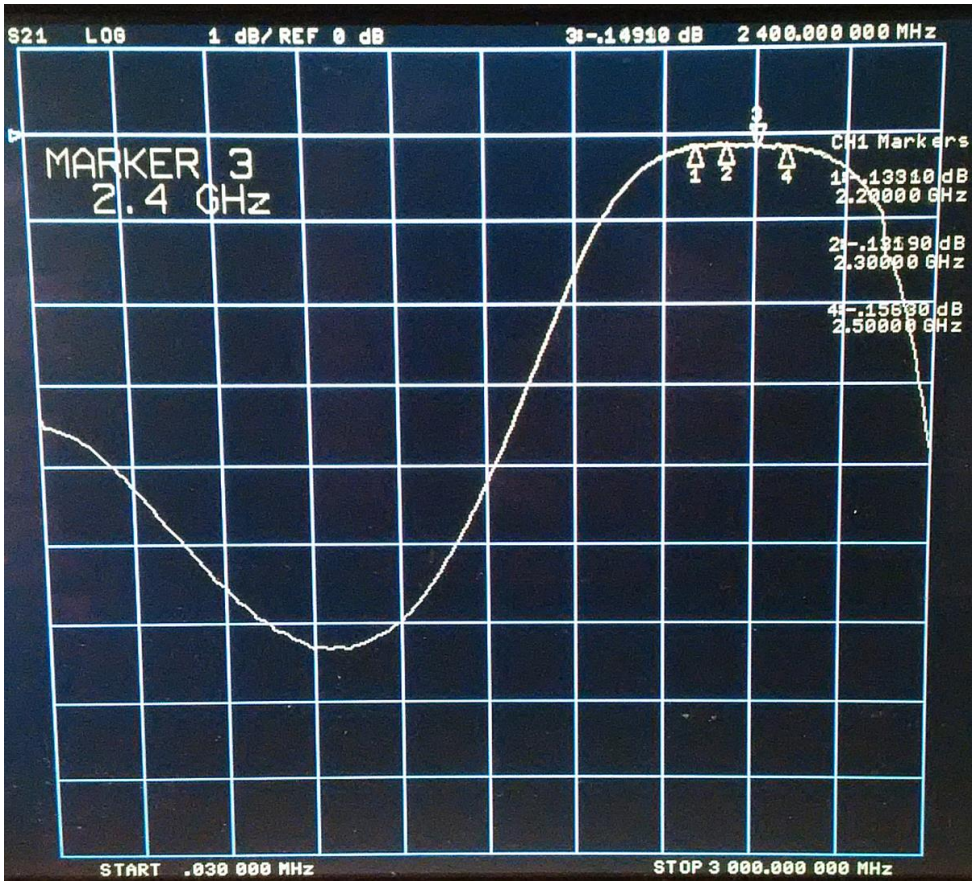


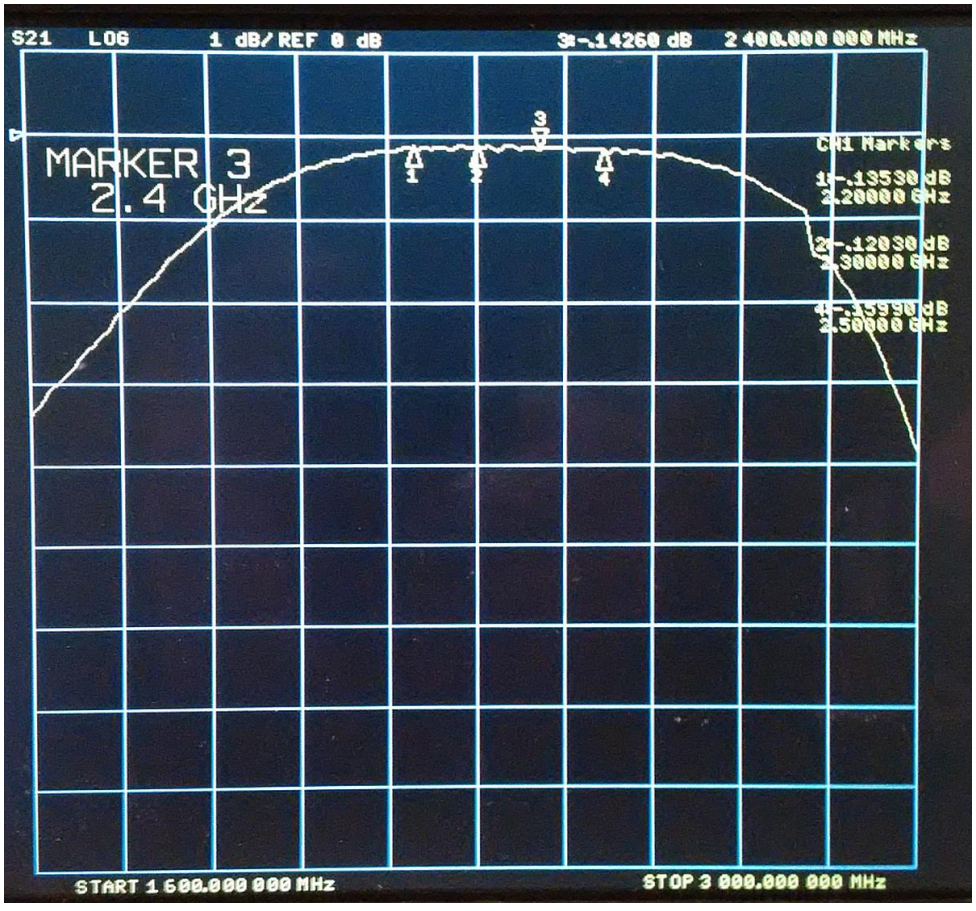
Below you will find some measurement results of this 13cm isolator:

S11 input matching (smith chart looks perfect)



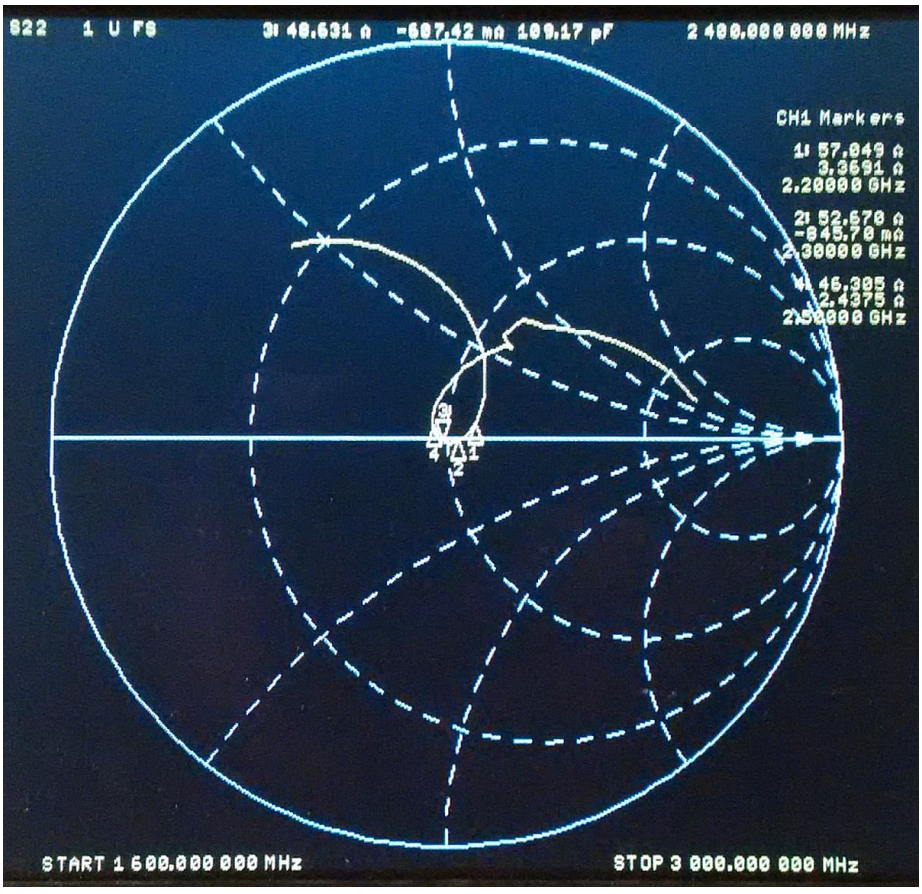
S21 forward transmission (insertion loss at 2400 MHz is 0.15dB)





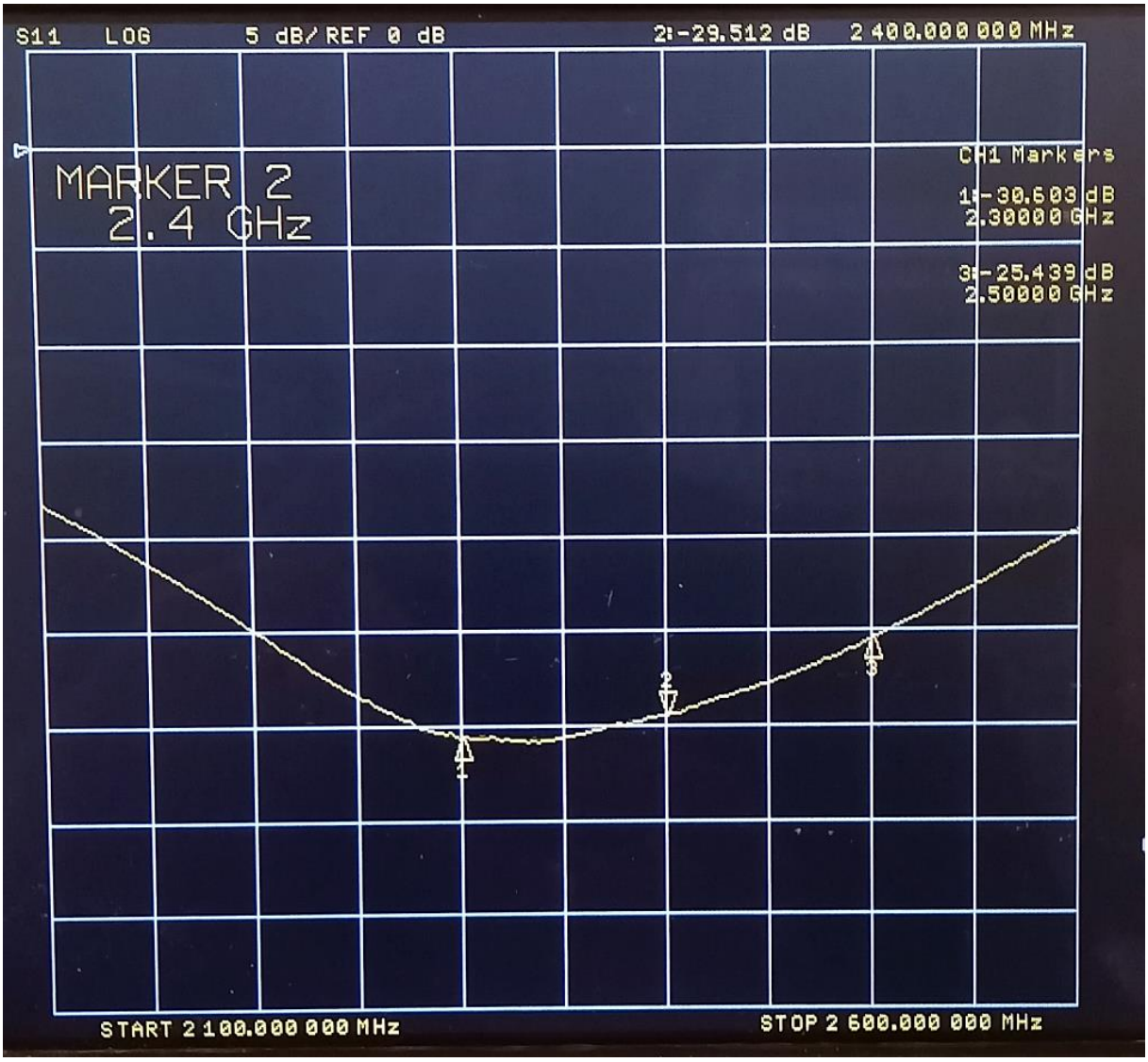
S12 reverse transmission (isolation at 2400 MHz is -27dB)

S22 output matching (smith chart looks perfect)

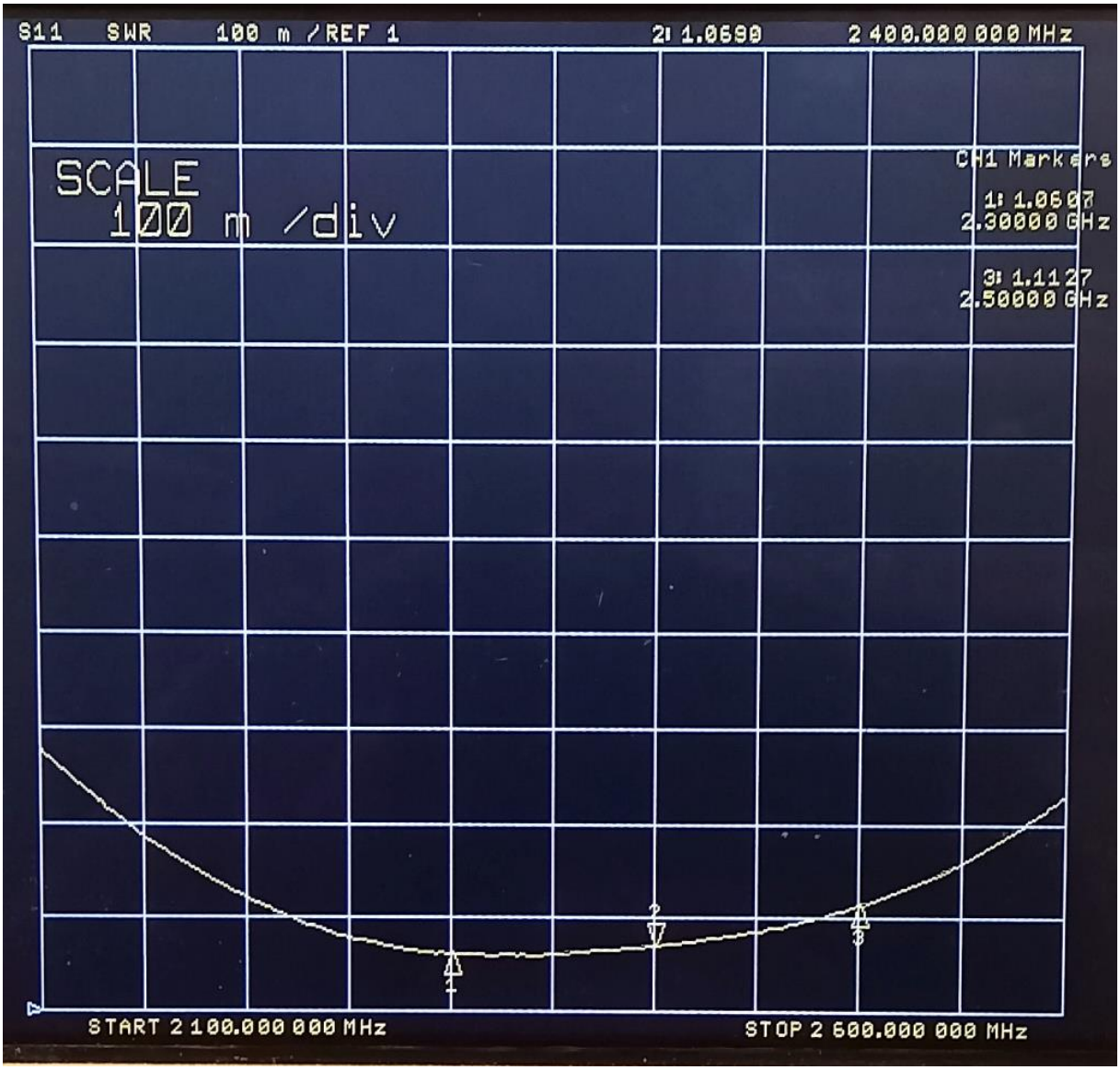


The measurements show that the specified parameter with respect to input and output return loss are met and that insertion loss and isolation are even exceeded.

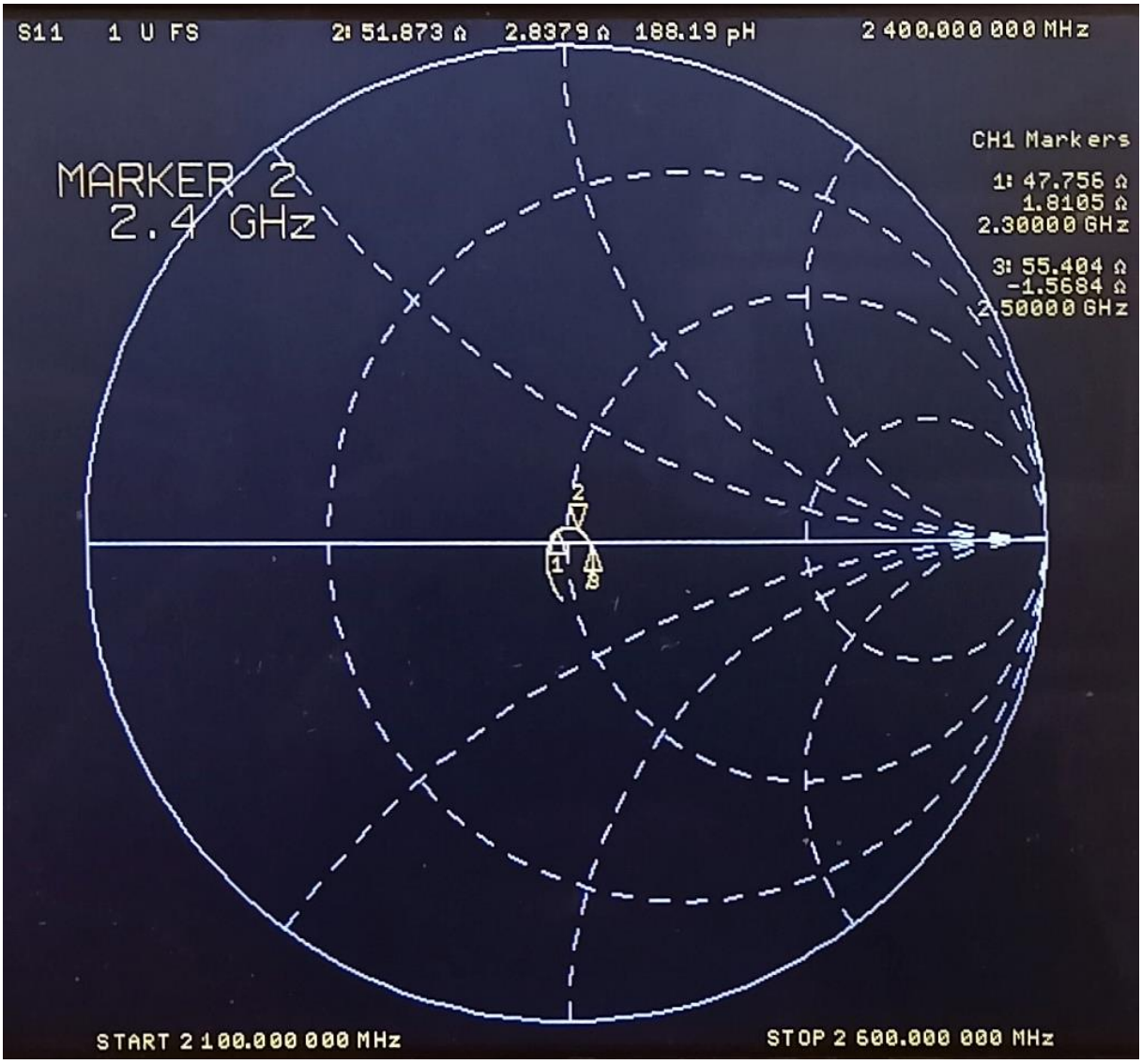
End of 2020 I repeated the measurements this time in a smaller frequency range and with an improved calibration setup of my VNA. Below please find the new measurement results.



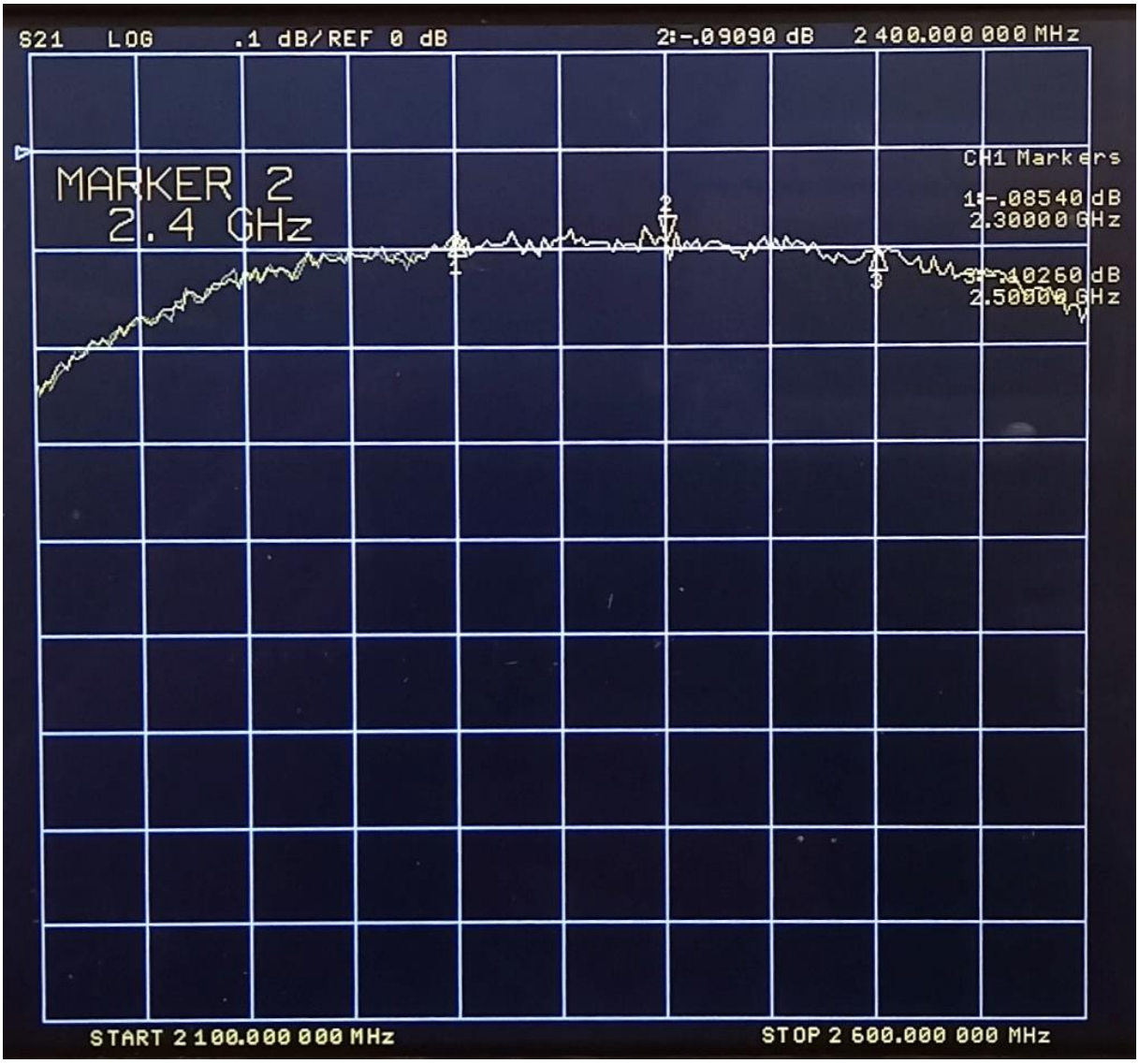
S11 log mag measurements show an excellent return loss of 30.6dB@2.3GHz and 29.5dB@2.4GHz



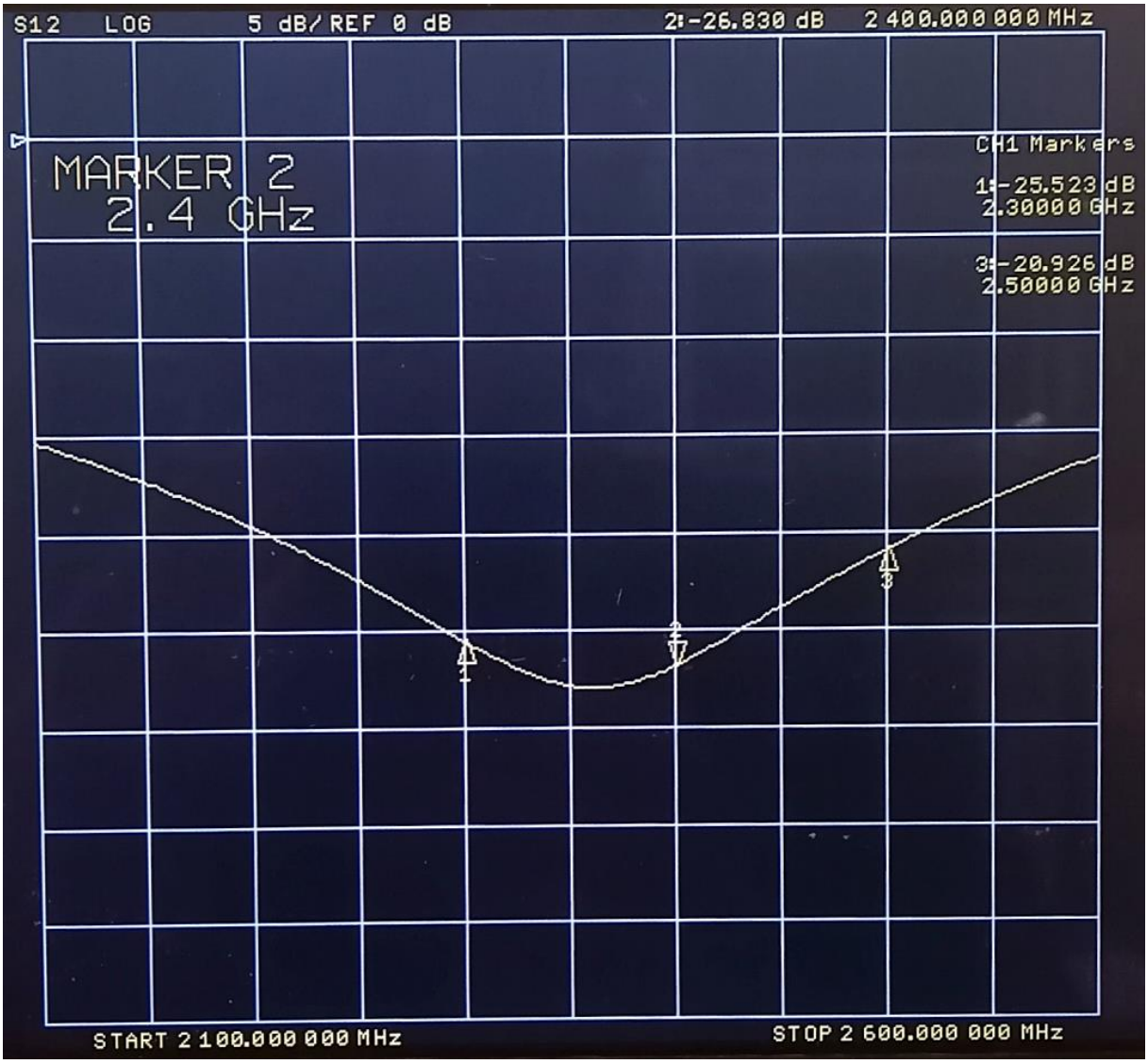
S11 SWR correspondingly shows a minimum SWR of 1.06@2.3GHz and 1.07@2.4GHz and thus much better than the specified SWR of <1.2



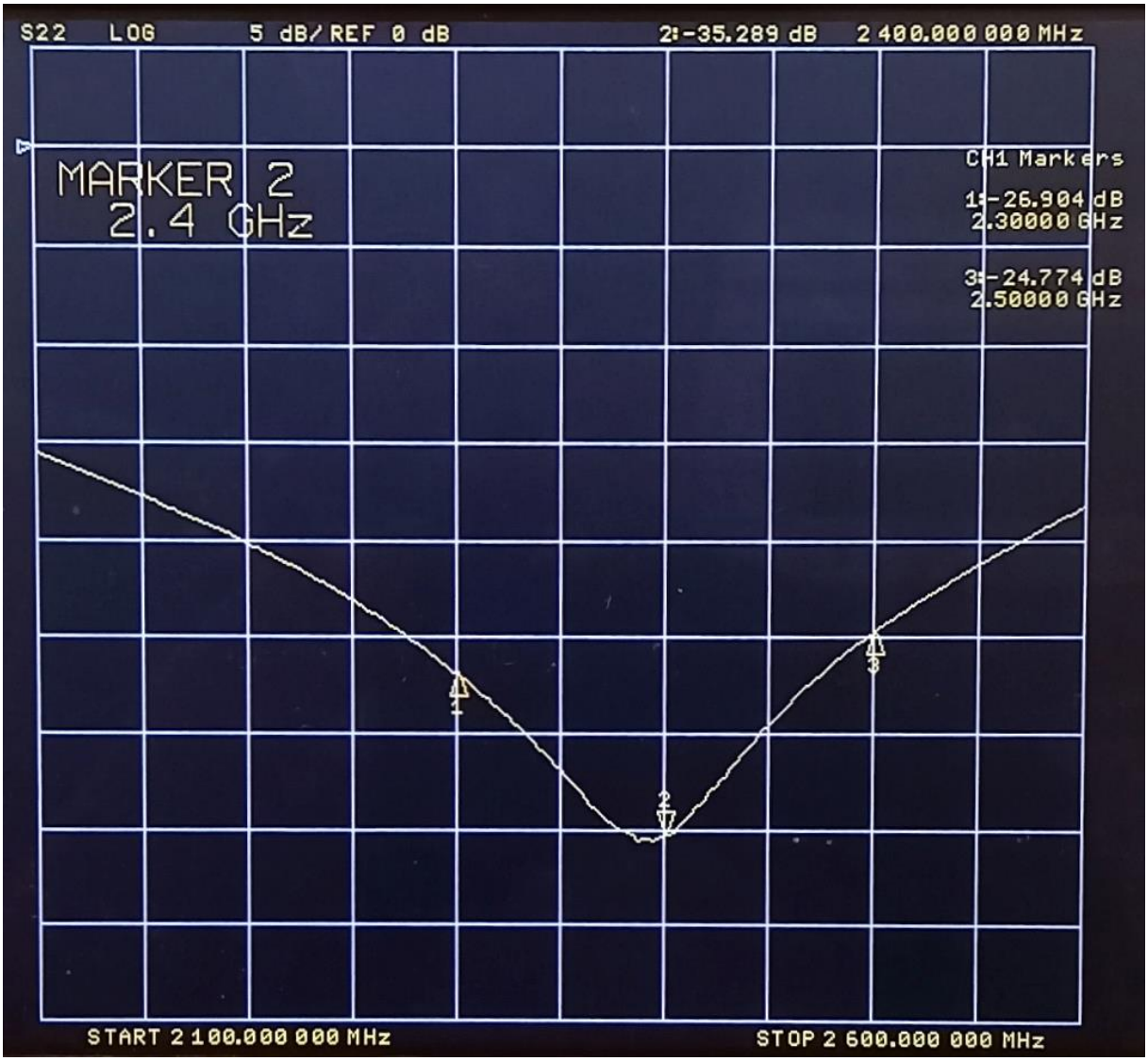
S11 Smith Chart shows a perfect shape



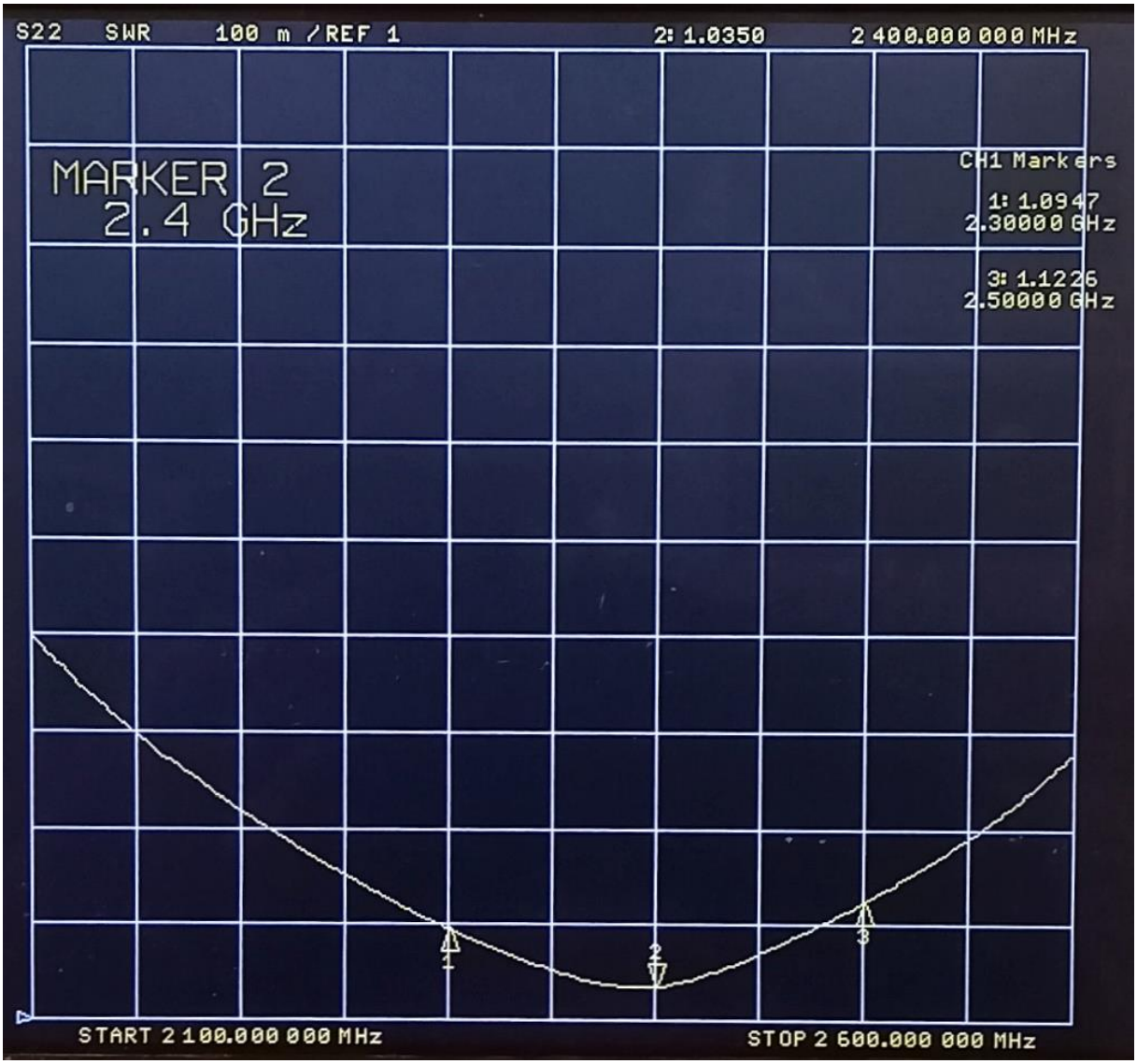
S21 shows an excellent insertion loss of below 0.1dB @2.3GHz and @2.4GHz and is thus much better than the specified value of <0.3dB



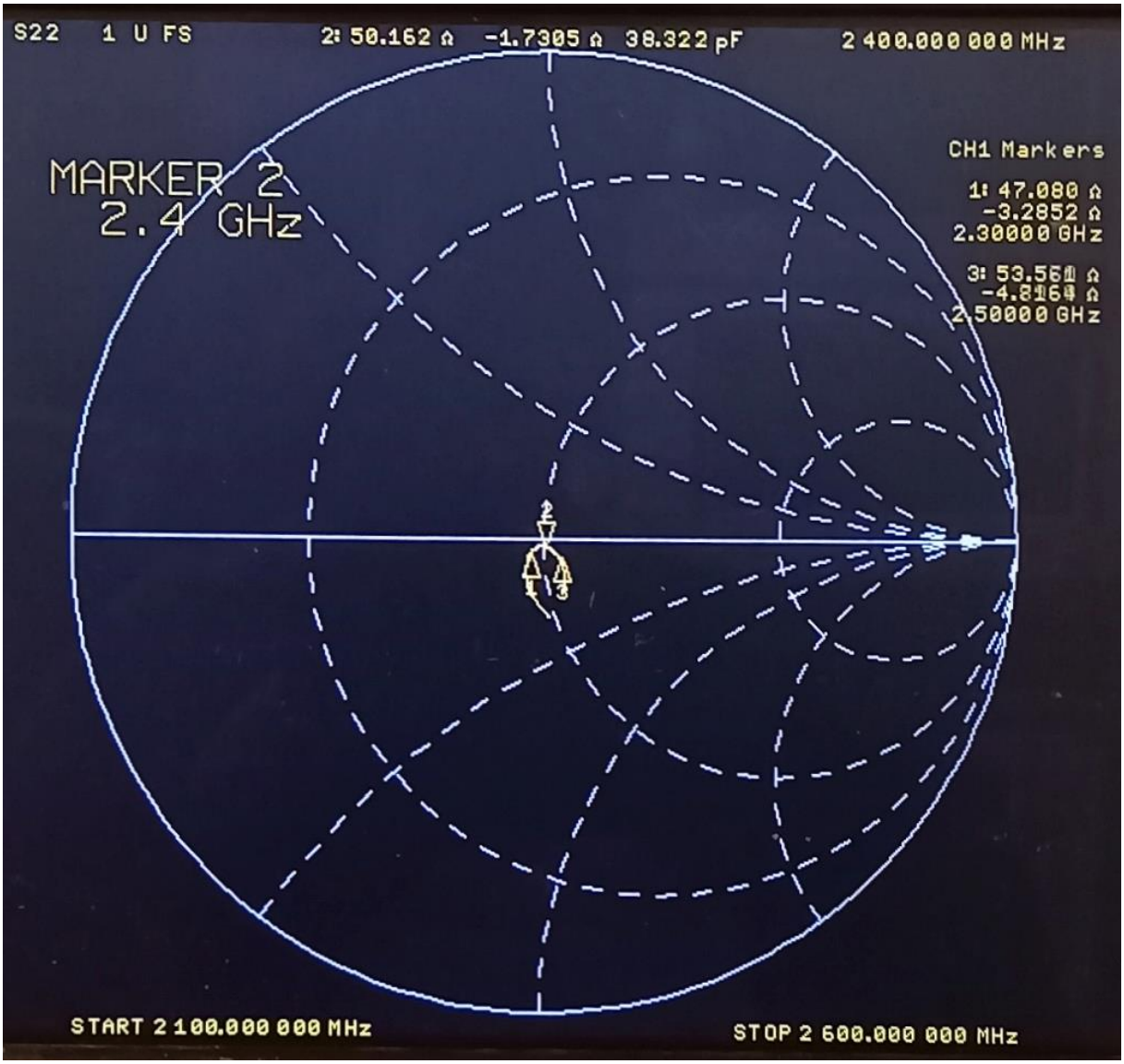
S11 shows an isolation of 25.5dB@2.3GHz and 26.8dB@2.4GHz and thus quite in line with the specification of >25dB



S22 log mag shows a return loss of 26.9dB@2.3GHz and 35.3B@2.4GHz



S22 SWR accordingly shows a minimum SWR of 1.04@2.4GHz and 1.09@2.3GHz and is thus much better than the specified value of <1.2



S22 Smith Chart also shows a perfect shape

The new measurement results confirm the first measurements. The insertion loss is even slightly better than measured before and input as well as output return loss are significantly better than specified.

In summary this isolator is probably one of the best I have measured so far for 2.4GHz and perfectly well suited to protect the output stage of my QO-100 transverter so that even with disconnected antenna no damage can occur at the amplifier.

I will be happy to answer questions and always appreciate feedback. Many thanks in advance.

Best regards

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