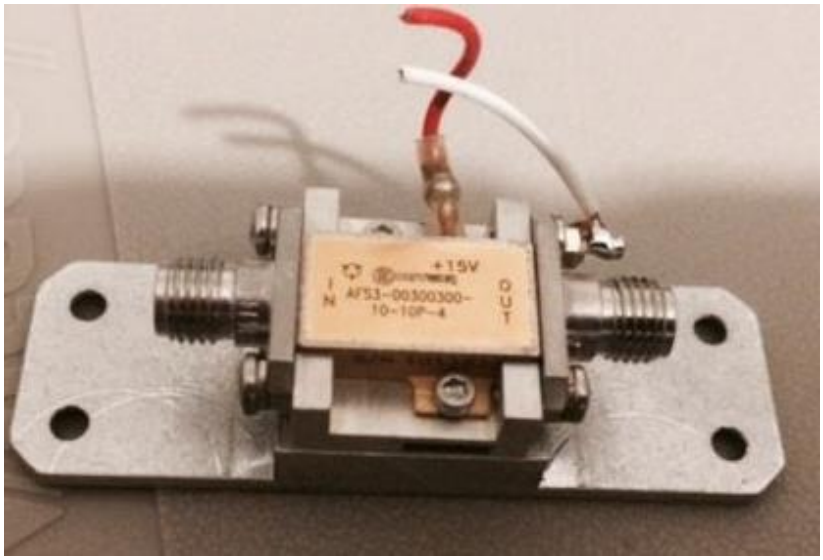
Wideband Amplifier MITEQ AFS3-00300300-10-10P-4

Matthias, DD1US, Now. 18th 2019, Rev. 1.1

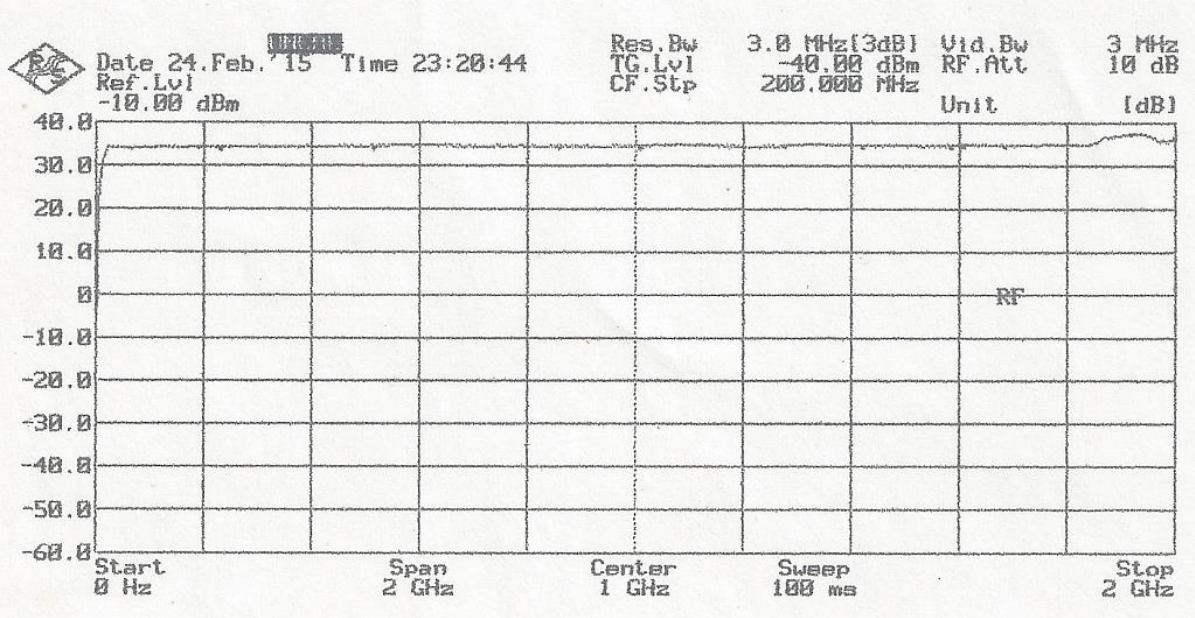
Some time ago I was able to acquire some wide band amplifiers and now found the time to characterize them. Here is the data I measured of the MITEQ AFS3-00300300-10-10P-4 device.

On the internet I did not find data about this amplifier other than that the frequency range should be either 0.2-2 GHz or 0.3 to 3 GHz and the gain should be 30dB. Furthermore, the P1dB output power should be +27dBm and the noise figure should be 1.8dB.

I mounted the amplifier on a heat sink in order to avoid getting it too warm as this certainly degrades not only the lifetime but also performance, especially the noise figure. My device has a current consumption of 100mA at a supply voltage of 13V. Varying the supply voltage between 12V and 15V seems to be still ok to operate the device with good performance.

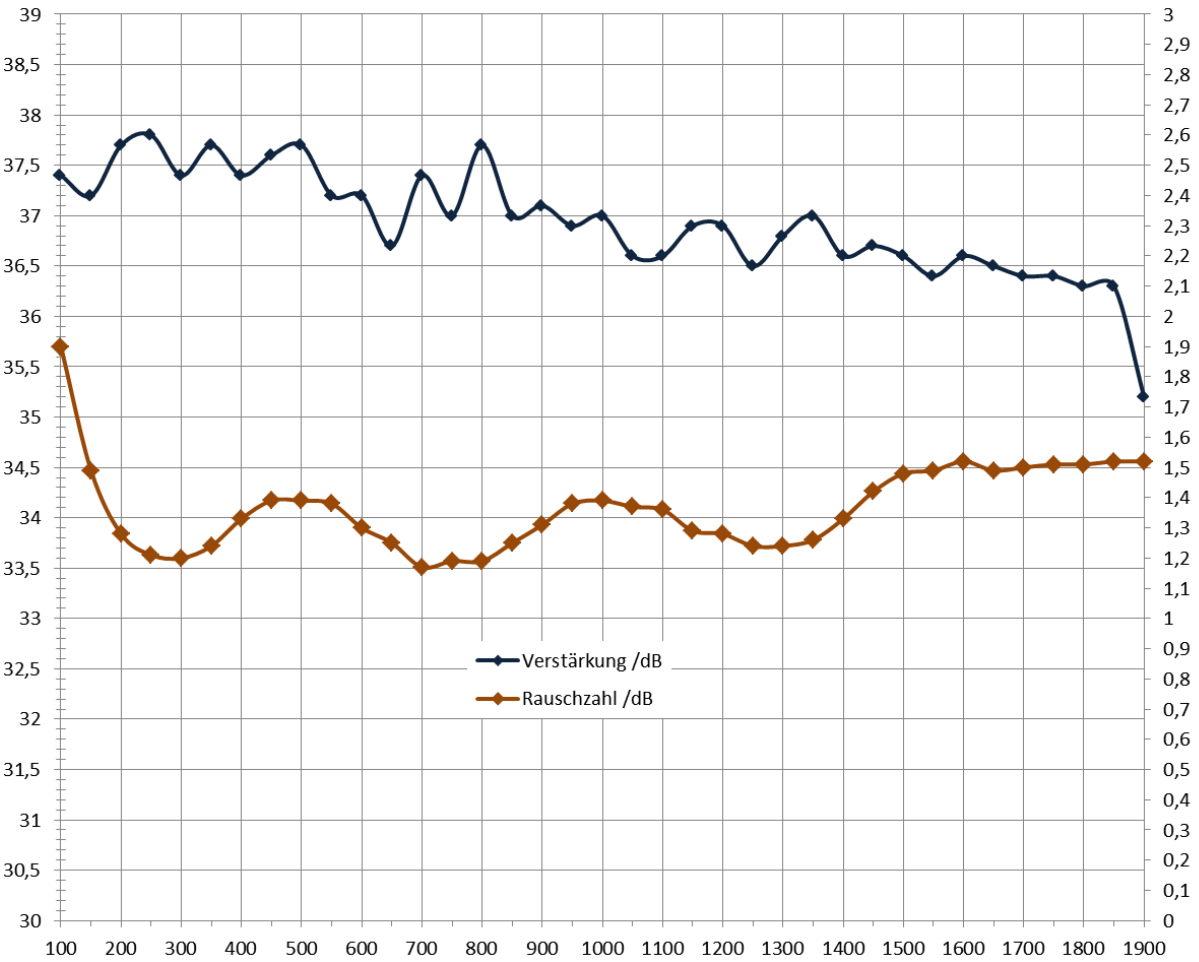


First I measured the device with a spectrum analyzer with integrated tracking generator which covers the range up to 1900 MHz. Here are the results:



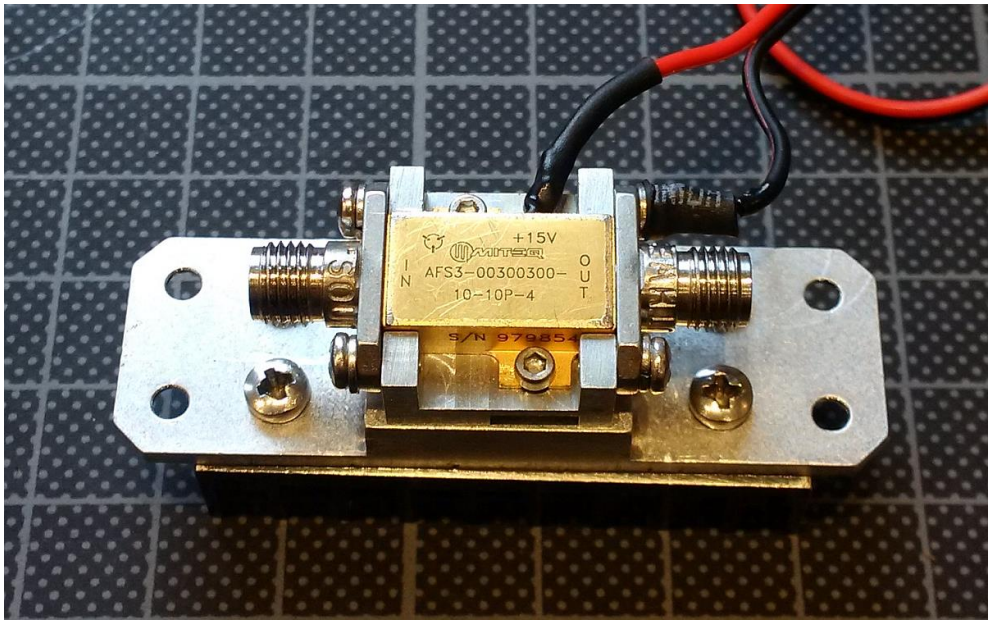
As can be seen the gain is very flat between about 30 and 2000 MHz with approximately 35 dB.

Next, I measured the device with my noise measurement setup which covers the range 100 MHz to 1900 MHz. Here are the results:

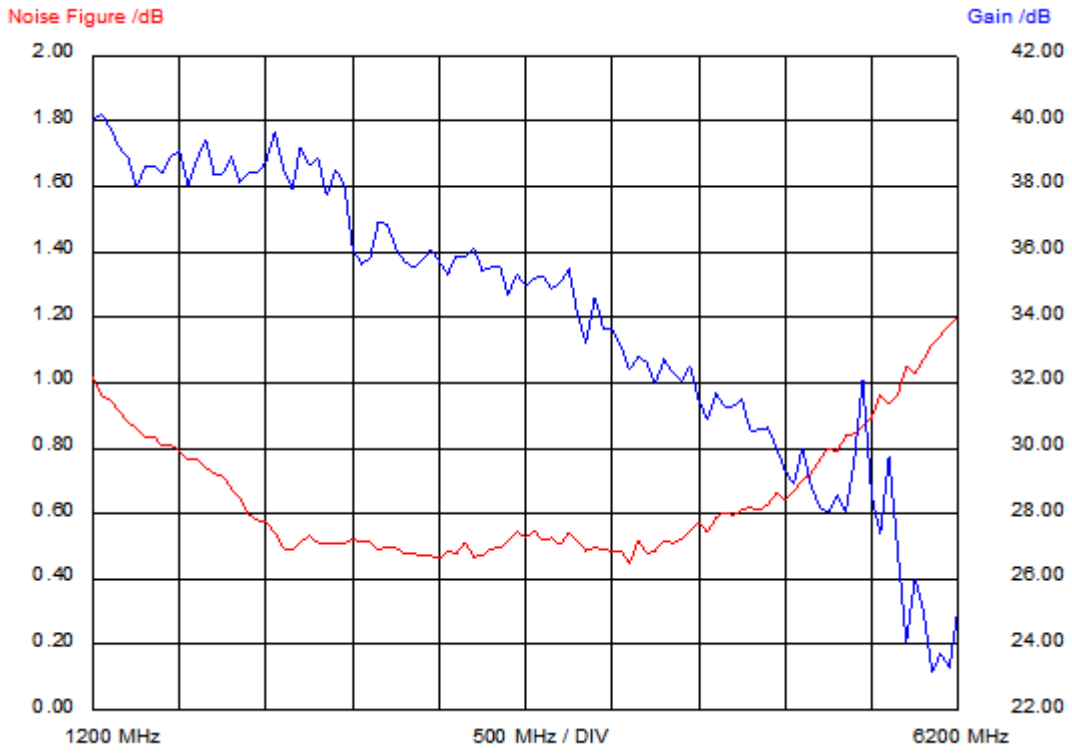


You can see that the gain (dark blue curve “Verstärkung” with the left scale) is quite constantly about 37dB in the range from 100 up to 1900 MHz and the noise figure (brown curve “Rauschzahl” with the right scale) at the same frequency range is about 1.2 to 1.5 dB.

In summer 2019 I was able to acquire another unit of this amplifier. Here is a picture of it:



Below you can find the measurement results of the second sample. Meanwhile I had updated my measurement setup and can now measure gain and noise figure over a wider range:



The gain in the range 1200 – 1900 MHz is quite the same as of the first unit. The noise figure of the second unit is a bit lower and interestingly the minimum noise figure of around 0.5dB is achieved in the frequency range 2000 – 4500 MHz. Thus, this amplifier is very well suited as a S-band LNA.

I am always grateful to get feedback and will be happy to answer questions.

Please direct them to the Email address which you will find below.

Best regards

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