

Measurement results of a Worldspace 2,3V low noise amplifier

Rev 1.0

Hello,

recently I was able to acquire a couple of LNAs which were originally designed to amplify the signals from the Worldspace satellites.

Here are some pictures of the LNA and its package. The input connector is N-type and 50 Ohms, the output connector is F-type and thus possibly 75 Ohm. It is biased through its output port. The nominal supply voltage is 2,3V. The typical supply current is 20mA.

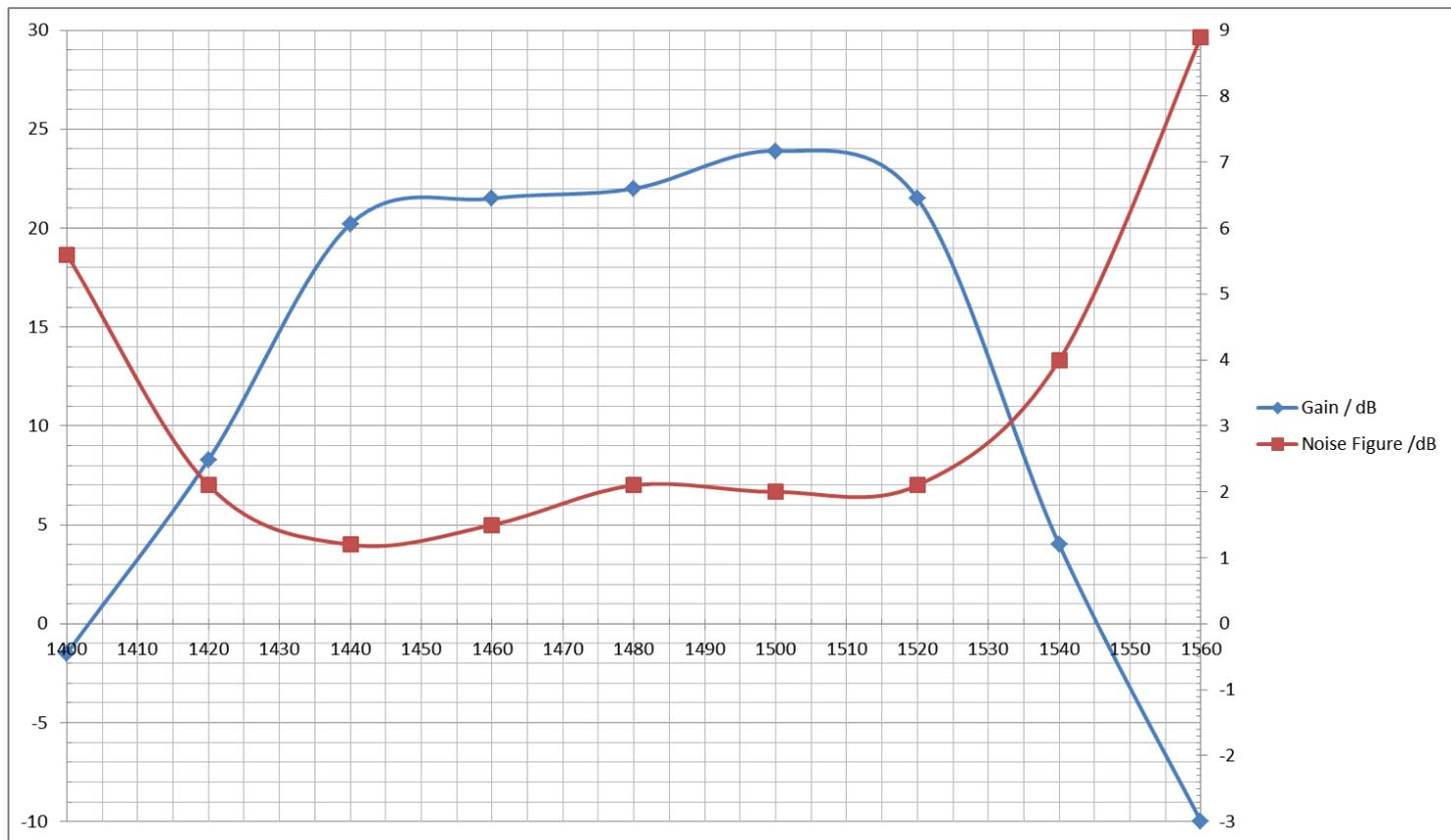




Finally I found the time to measure such an LNA. Its serial number was ZWT020402079.

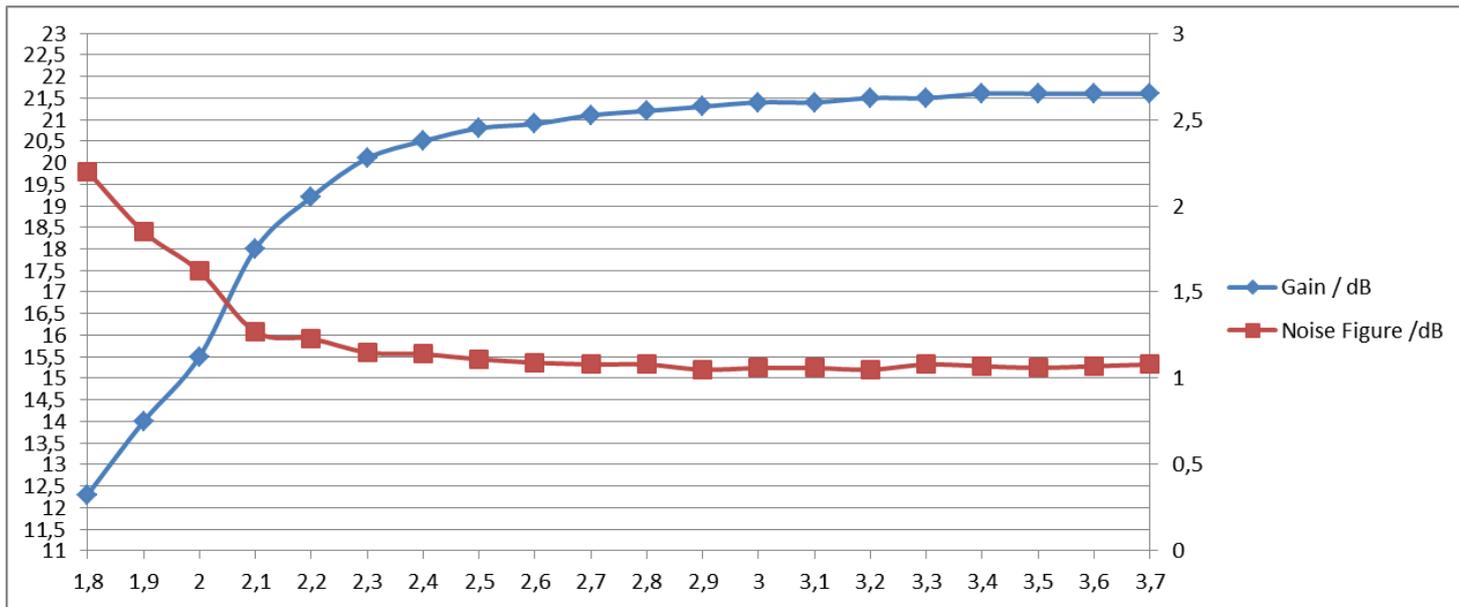
On the next pages you can find the results of my measurements. Please note that I measured in a 50 Ohm system. Possibly the measurements are slightly off as the LNA has F-connectors at the output port and thus possibly 75 Ohms.

Here is the gain and noise figure versus frequency in the range 1400-1560 MHz. All measurements were done with a supply voltage of 2,3V.



Frequency /MHz	Gain / dB	Noise Figure /dB	Vs /V
1400	-1,5	5,6	2,3
1420	8,3	2,1	2,3
1440	20,2	1,2	2,3
1460	21,5	1,5	2,3
1480	22	2,1	2,3
1500	23,9	2	2,3
1520	21,5	2,1	2,3
1540	4	4	2,3
1560	-10	8,9	2,3

Next I checked gain and noise figure as a function of the supply voltage. All measurements were done at a frequency of 1440 MHz.



Vs / V	Gain / dB	Noise Figure / dB	Is / mA	Frequency / MHz
1,8	12,3	2,2	20	1440
1,9	14	1,85	20	1440
2	15,5	1,62	20	1440
2,1	18	1,27	20	1440
2,2	19,2	1,23	20	1440
2,3	20,1	1,15	20	1440
2,4	20,5	1,14	20	1440
2,5	20,8	1,11	20	1440
2,6	20,9	1,09	20	1440
2,7	21,1	1,08	20	1440
2,8	21,2	1,08	20	1440
2,9	21,3	1,05	20	1440
3	21,4	1,06	30	1440
3,1	21,4	1,06	30	1440
3,2	21,5	1,05	30	1440
3,3	21,5	1,08	30	1440
3,4	21,6	1,07	30	1440
3,5	21,6	1,06	30	1440
3,6	21,6	1,07	30	1440
3,7	21,6	1,08	30	1440

If you have any comments or further information then please send them to the Email address given below. Many thanks in advance for your feedback.

Best regards

Matthias Bopp

Email: dd1us@amsat.org

Homepage: www.dd1us.de