2.3 GHz LNA KUHNE electronics MKU LNA 231 AH

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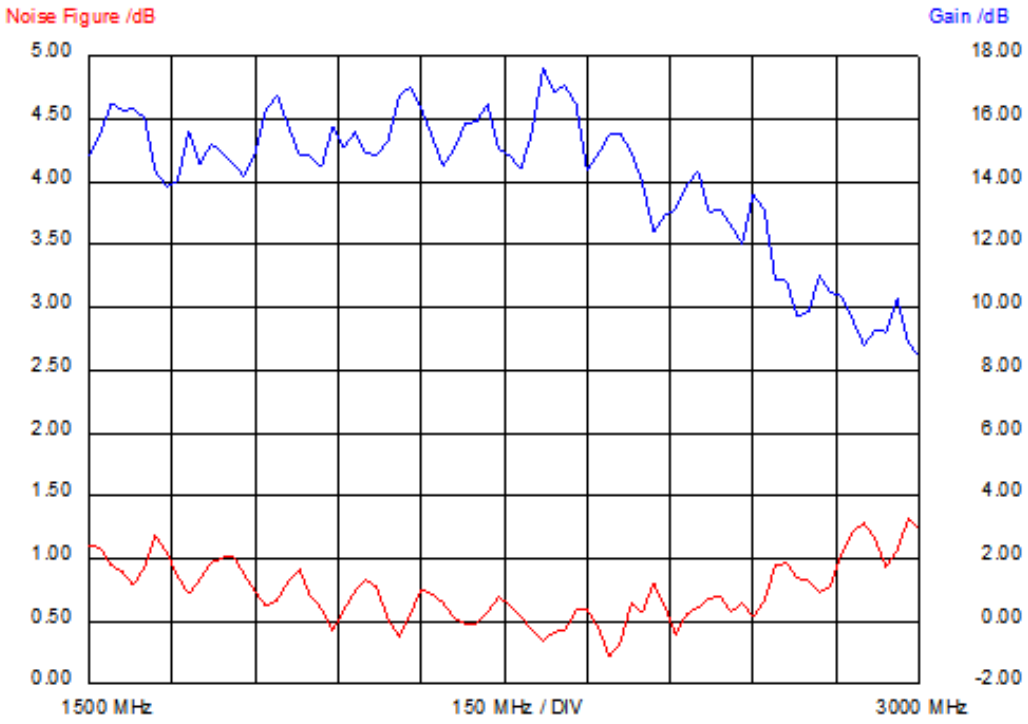
Hello,

Recently I was able to acquire second hand a 2.4 GHz LNA MKU 231 AH from KUHNE electronics. I am planning to use it at my portable EME setup which I am working at. The LNA is in a professional milled aluminum encasing with high grade N-connectors. Here is a picture of the device:

Here are the specifications found at the website of Kuhne electronics:

Frequency Range:	2304 … 2322 MHz
Gain:	typ. 16 dB
Noise Figure:	typ. 0.4dB
Input power:	max. 0dBm
Supply voltage:	+9…+12V DC
Supply current:	typ. 15mA
Dimensions:	50x30x22 mm

I measured gain and noise figure in the frequency range 1500 … 3000 MHz. I am not happy with the ripple in gain and NF which can be seen on the graph. I suspect I may need to recheck my measurement setup eventually.



Here is table of the measured values:

Frequency	Gain	Nf	Temp
1500 MHz	14.84 dB	1.11 dB	84.1 K
1520 MHz	15.51 dB	1.08 dB	82.2 K
1540 MHz	16.51 dB	0.95 dB	70.5 K
1560 MHz	16.29 dB	0.89 dB	66.2 K
1580 MHz	16.32 dB	0.79 dB	57.6 K
1600 MHz	16.06 dB	0.93 dB	69.5 K
1620 MHz	14.33 dB	1.19 dB	91.1 K
1640 MHz	13.86 dB	1.05 dB	79.4 K
1660 MHz	14.02 dB	0.86 dB	63.2 K
1680 MHz	15.61 dB	0.72 dB	52.1 K
1700 MHz	14.55 dB	0.83 dB	61.1 K
1720 MHz	15.20 dB	0.96 dB	72.1 K
1740 MHz	14.96 dB	1.00 dB	75.4 K
1760 MHz	14.60 dB	1.02 dB	77 K
1780 MHz	14.18 dB	0.88 dB	65 K
1800 MHz	14.92 dB	0.73 dB	53.3 K
1820 MHz	16.33 dB	0.62 dB	44.4 K
1840 MHz	16.75 dB	0.67 dB	48.4 K
1860 MHz	15.80 dB	0.82 dB	59.9 K
1880 MHz	14.85 dB	0.91 dB	67.9 K
1900 MHz	14.81 dB	0.70 dB	50.6 K
1920 MHz	14.48 dB	0.60 dB	42.9 K
1940 MHz	15.77 dB	0.42 dB	29.3 K
1960 MHz	15.08 dB	0.59 dB	42.1 K
1980 MHz	15.60 dB	0.73 dB	53.4 K
2000 MHz	14.91 dB	0.83 dB	61.2 K
2020 MHz	14.86 dB	0.77 dB	56 K
2040 MHz	15.32 dB	0.51 dB	36.1 K
2060 MHz	16.73 dB	0.38 dB	26.3 K
2080 MHz	17.03 dB	0.55 dB	39.5 K
2100 MHz	16.36 dB	0.75 dB	54.9 K
2120 MHz	15.43 dB	0.72 dB	51.9 K
2140 MHz	14.50 dB	0.65 dB	46.5 K
2160 MHz	15.08 dB	0.52 dB	37.2 K
2180 MHz	15.86 dB	0.47 dB	33.5 K
2200 MHz	15.93 dB	0.48 dB	33.9 K
2220 MHz	16.47 dB	0.57 dB	40.9 K
2240 MHz	15.05 dB	0.69 dB	49.8 K
2260 MHz	14.82 dB	0.63 dB	45.1 K
2280 MHz	14.40 dB	0.54 dB	38.4 K
2300 MHz	15.60 dB	0.43 dB	29.8 K
2320 MHz	17.64 dB	0.34 dB	23.7 K
2340 MHz	16.88 dB	0.41 dB	28.9 K
2360 MHz	17.06 dB	0.43 dB	29.9 K
2380 MHz	16.47 dB	0.59 dB	42 K
2400 MHz	14.36 dB	0.59 dB	42.4 K
2420 MHz	14.89 dB	0.45 dB	31.6 K
2440 MHz	15.51 dB	0.22 dB	14.8 K
2460 MHz	15.55 dB	0.33 dB	22.9 K
2480 MHz	14.93 dB	0.64 dB	46.1 K
2500 MHz	13.98 dB	0.57 dB	40.7 K
2520 MHz	12.40 dB	0.81 dB	59.1 K
2540 MHz	12.94 dB	0.61 dB	43.9 K
2560 MHz	13.14 dB	0.39 dB	27.6 K
2580 MHz	13.91 dB	0.56 dB	39.8 K

Frequency	Gain	Nf	Temp
2600 MHz	14.34 dB	0.61 dB	43.9 K
2620 MHz	13.03 dB	0.68 dB	49.3 K
2640 MHz	13.13 dB	0.70 dB	50.5 K
2660 MHz	12.60 dB	0.57 dB	40.8 K
2680 MHz	12.04 dB	0.65 dB	46.4 K
2700 MHz	13.60 dB	0.53 dB	38 K
2720 MHz	13.10 dB	0.66 dB	47.6 K
2740 MHz	10.92 dB	0.94 dB	70.3 K
2760 MHz	10.83 dB	0.96 dB	72 K
2780 MHz	9.71 dB	0.84 dB	62 K
2800 MHz	9.86 dB	0.82 dB	60.6 K
2820 MHz	11.00 dB	0.73 dB	52.7 K
2840 MHz	10.47 dB	0.78 dB	57 K
2860 MHz	10.36 dB	1.05 dB	78.9 K
2880 MHz	9.59 dB	1.21 dB	93.5 K
2900 MHz	8.80 dB	1.28 dB	99.8 K
2920 MHz	9.26 dB	1.15 dB	88.3 K
2940 MHz	9.23 dB	0.93 dB	69.5 K
2960 MHz	10.28 dB	1.06 dB	80.4 K
2980 MHz	8.89 dB	1.31 dB	102.6 K
3000 MHz	8.42 dB	1.23 dB	95.1 K

This LNA is rather broadband and can certainly also be used in the satellite downlink band from 2200-2300 MHz as well as in the ISM band from 2400-2500 MHz.

In the specified frequency range the results are:

Frequency /MHz	Gain spec /dB	Gain meas. /dB	NF spec /dB	NF meas. /dB
2300	16	15,6	0,4	0,43
2320	16	17,6	0,4	0,34

The measured gain and noise figure are quite close to the specified value.

I always appreciate feedback and will be happy to answer questions.

Please send it to the Email address given below.

Best regards

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