

LimeSDR mini TX output power in the VHF/UHF/SHF bands

Matthias DD1US, November 16th 2020

Recently I got another LimeSDR mini and when checking its performance I also measured the maximum output power in the VHF/UHF/SHF ham radio bands.

The LimeSDR mini was controlled by SDR-Console V3.0.26 and the RX and TX ports were set to “auto” which means SDR-Console selects automatically the proper ports depending on the band in use.

The modulation was set to FM and the drive level to 100%. The LimeSDR mini was powered through the USB connector from the PC. In the tables below you can find the results.

Frequency /MHz	Pout/dBm
144	14,5
145	14,5
146	14,5
430	14,4
432	14,4
434	14,4
436	14,4
438	14,4
440	14,4

In the 2m and 70cm bands the output power is almost them same and does not show any significant variations in the bands. With 14,4dBm is about 2dB higher compared to my measurements I did some time ago at a LimeSDR USB.

Frequency /MHz	Pout/dBm
1240	13,08
1250	13,16
1260	12,96
1270	12,77
1280	12,5
1290	12,31
1300	12,31

In the 23cm band the output power is dropping about 0.8dB from lower to higher frequencies. However also here the output power is significantly (about 3-4dB) higher compared to the LimeSDR USB.

Frequency /MHz	Pout/dBm
2300	9,02
2320	9,02
2330	8,72
2340	8,36
2350	8,49
2360	8,49
2380	8,37
2390	8,04
2400	7,86
2410	7,52
2420	7,42
2430	7,32
2440	6,64
2460	6,47
2480	6,05
2500	5,6

In the 13cm band the output power drops about 3,4dB from the lower band edge to the upper edge. The output power is about 10dB higher than what I measured some time ago at the LimeSDR USB. It is also about 5dB higher than what I had previously measured at an ADALM Pluto device.

Frequency /MHz	Pout/dBm
3400	-5,71
3410	-5,63
3420	-5,51
3430	-5,52
3440	-6,04
3450	-5,83
3460	-6,04
3470	-5,95
3475	-6,09

Finally, I also measured the output power in the 9cm band. Here the output power level is about 10dB lower than in the 13cm band but the output power variation is only about 0.5dB.

Interestingly the output power of the LimeSDR mini is higher than then LimeSDR USB and the ADALM Pluto in all bands. In the 2m, 70cm and 23cm bands it is about 20mW which is nice to drive a medium power amplifier or even a high gain final power amplifier. In the 13cm band it is between 4 and 8mW. In the uplink band for QO-100 around 2400 MHz it is about 6mW and thus again higher than all previously measured SDRs.

I am very interested, whether other LimeSDR minis show the same characteristic. If you have data or feedback please send them to me. If you have any questions, I will be happy to answer them.

Best regards

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