

Hermes-Lite testing: <vk3pe>

Basic RF board V1.2

Testing to see levels of 2.4MHz and other low level spurs compared to wanted 29MHz using a BW of 50MHz on the SA.

Test setup:

V1.2 pcb with re-construction filter 100p, 330n, 200p, 390n, 200p, 330n, 100p, T1 to Wiki.

Driven using PowerSDR. Rigol SA, type DSA815-TG with quality 20dB attenuator in line. Ie all measurements shown on the pictures should have 20dB added to them for absolute levels. [The green line represents +10dBm]

First test was at 29MHz with drive set to '100' to achieve approx. +10dBm output. (+9dBm actual)

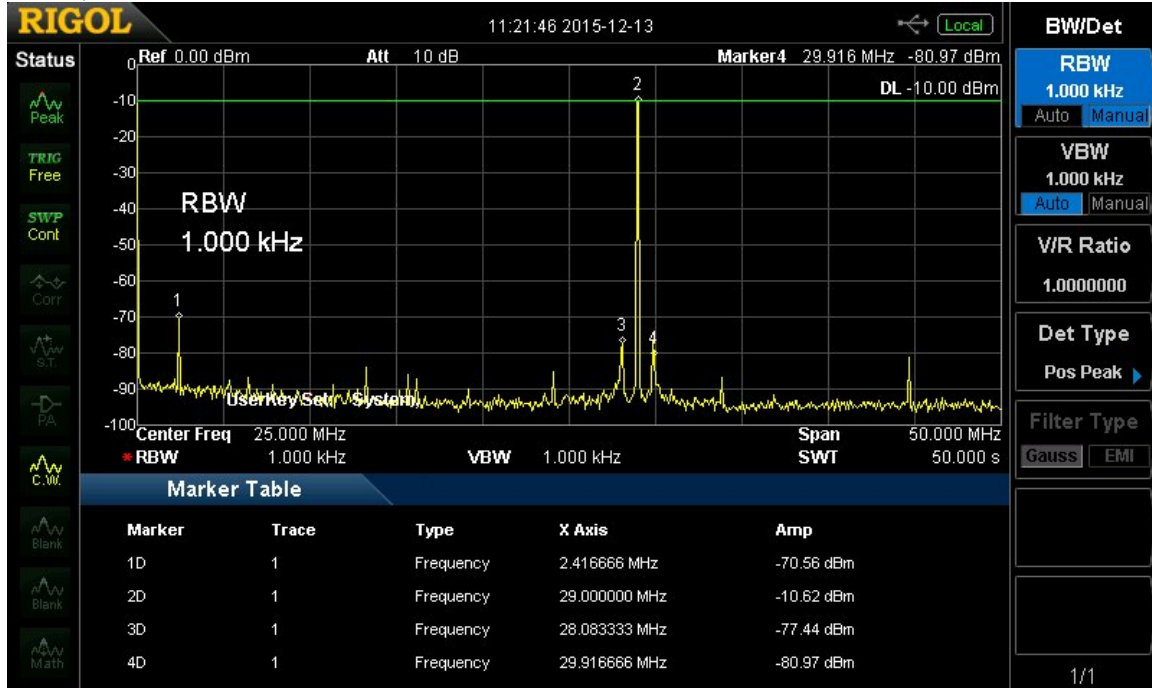


Figure 1 29MHz drive at '100', output approx +10dBm

The level at 2.4MHz is about 60dB down from wanted 29MHz level..

Another measurement was taken with the output at 29MHz reduced by 10dB, to see if the 2.4MHz level also drops by 10dB.

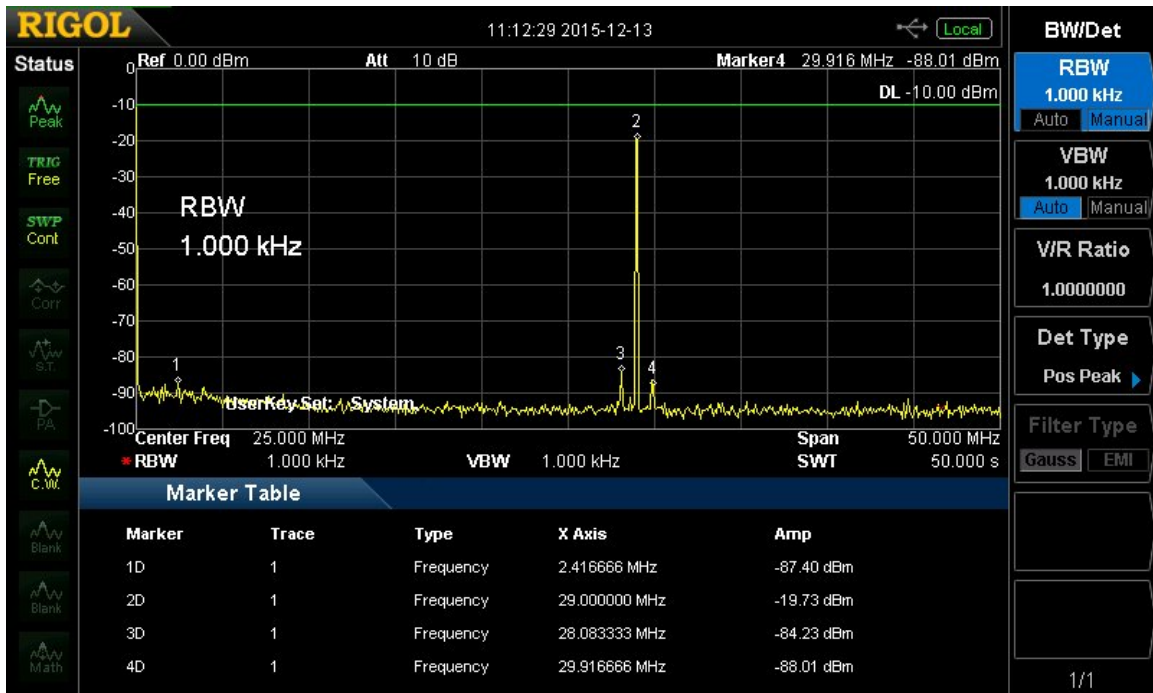


Figure 2 29MHz reduced drive to '32' in order to reduce 29MHz by ~10dB

As you can see from the picture above, the 2.4MHz level has actually dropped by ~17dB. All the other spurs except those around 29MHz (markers 3&4) have dropped into the noise floor of the SA. This indicates this 2.4MHz and other 'spurs' are heavily influenced by drive level from the AD9866.

The levels at markers 3 & 4 have dropped by around 10-11dB or so. A more linear response.

13th Dec, 2015