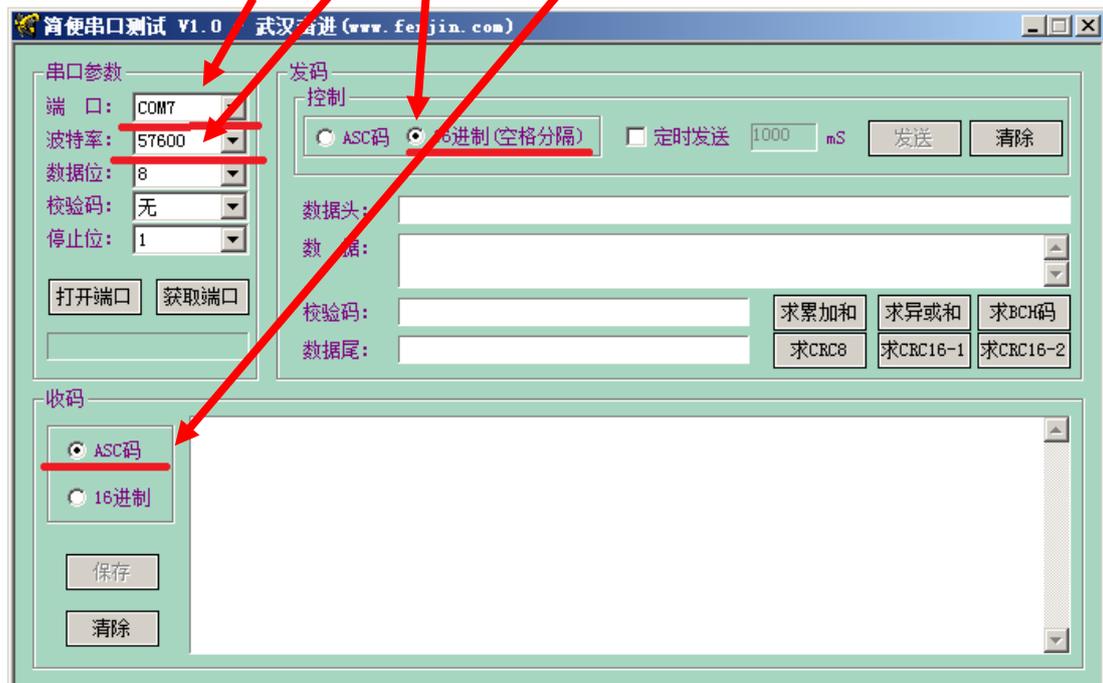# NWT4000 sweep and frequency calibration steps

Flatness calibration

ATTENTION: If curves is not flat or the linearity from -10dB to 0 dB is too compressed, then insert two 3dB attenuation to input and output both when instrument is used and when calibrated as described below. Then the linearity from 0dB down to -70dB is very accurate. The dynamic range is of course reduced by 6dB. Alternatively a single 6dB attenuator can be used and if so then place on the output not to reduce the sensitivity when used as spectrum analyzer.
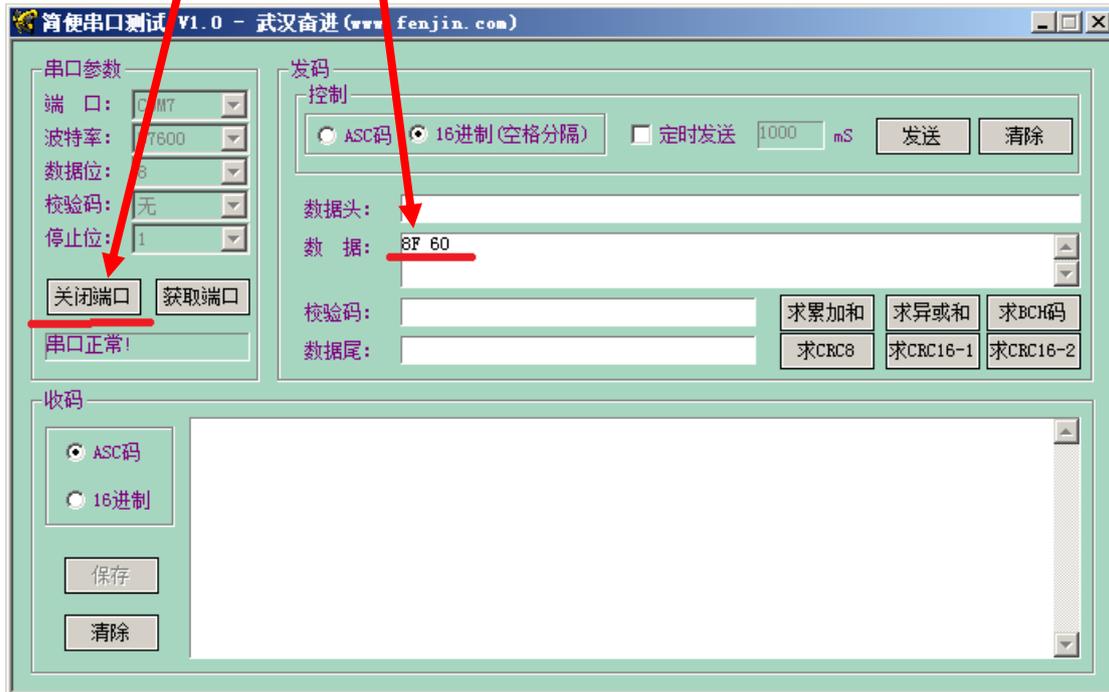
1. Connnect power,connect USB to PC,power on 30 minute.

2. Opened com assiter,select COM port
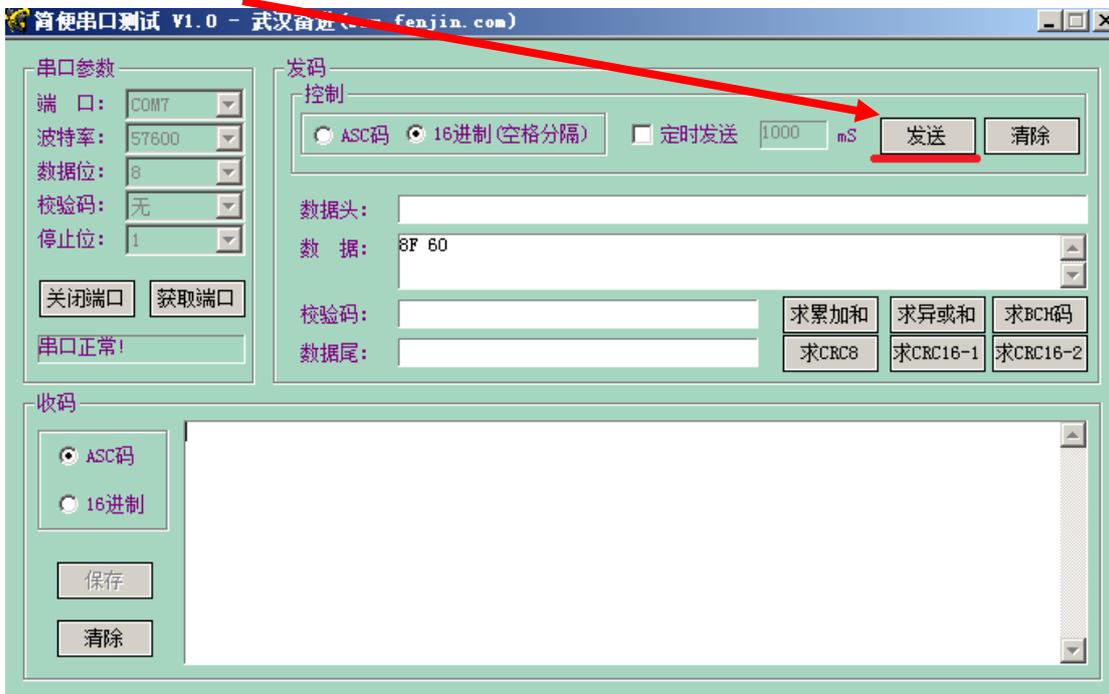   (You may remove the Chinese characters by renaming/editing the file name)

3. Select COM port, baudrate, hex, ASCII code

4. Open COM port, input 8F 60

5. Click on Send

6. According to the prompt, "short circuit" input output by connection a SMA male-male test cable, and when completed click on Send

7. Insert 40dB attenuation and when done click on Send

8. Calibration complete.

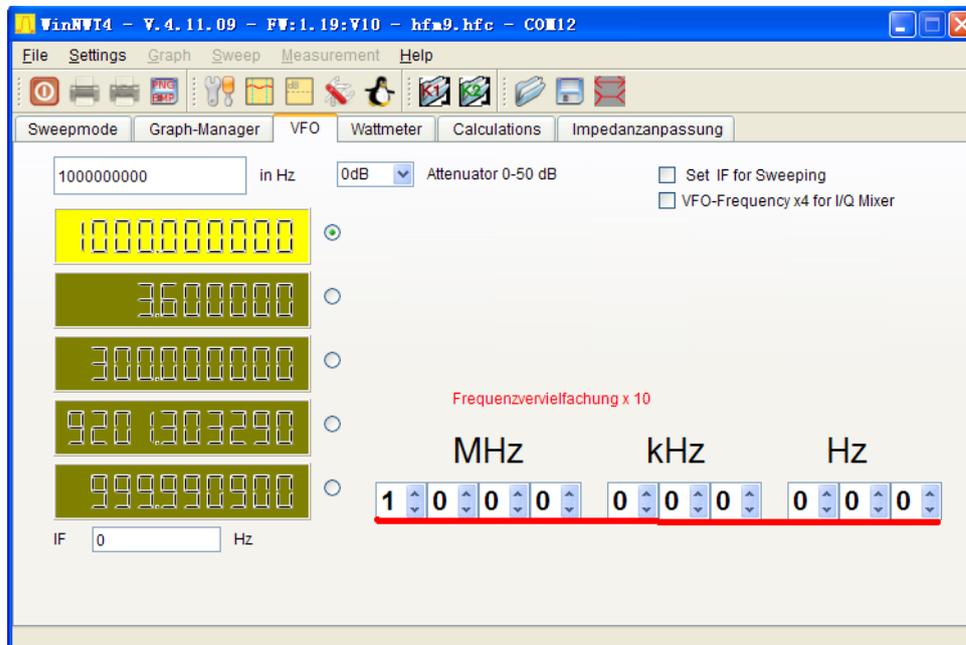9. Calibration complete the curve is flat for 0 and 40dB
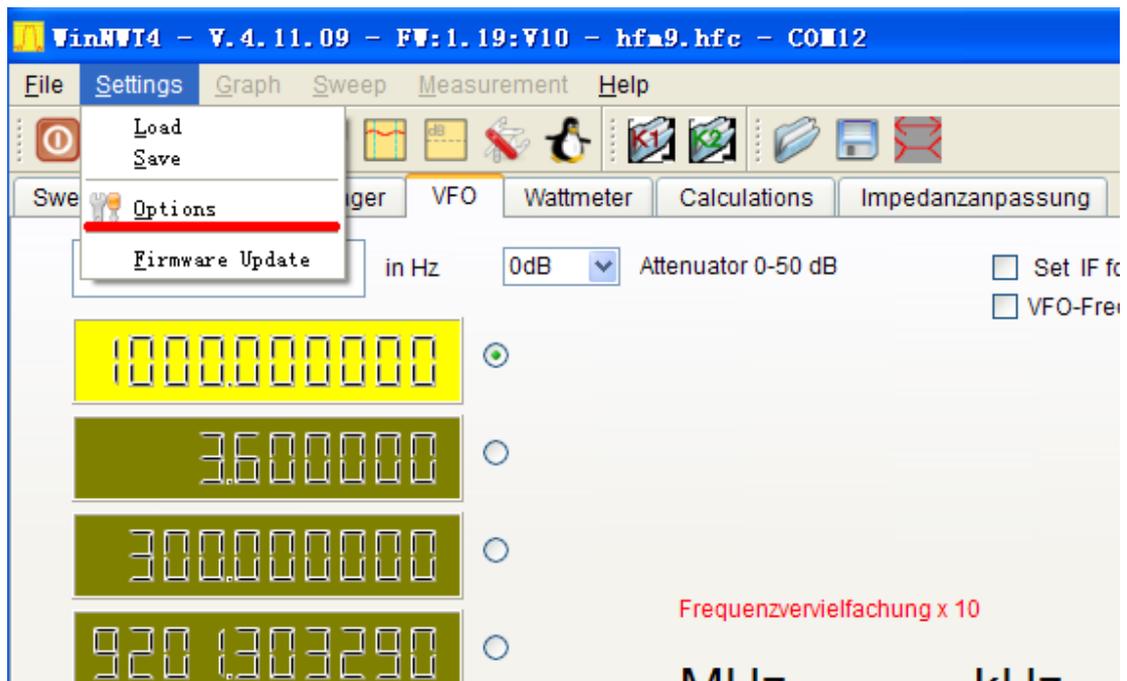
Frequency calibration

1. Prepare a 1GHz frequency counter, warm-up time enough, NWT4000 electric power up for 30 minutes
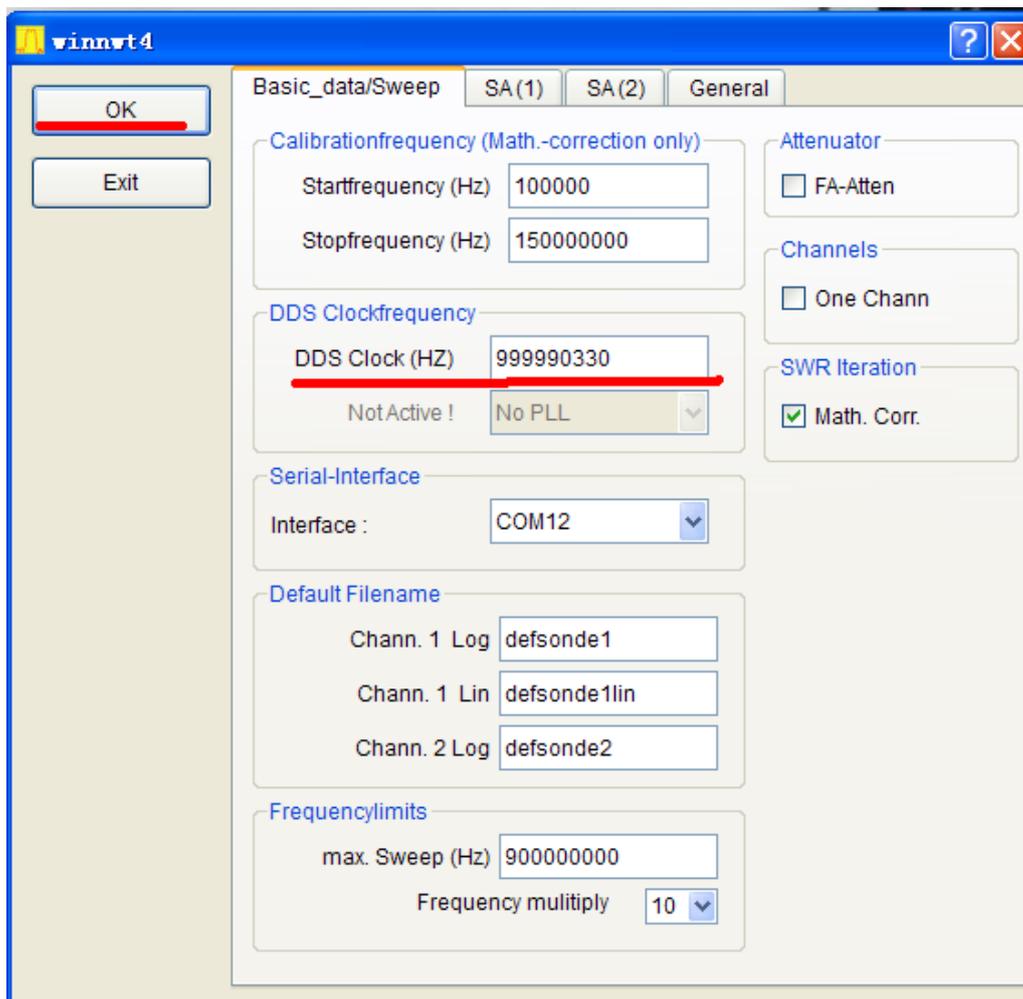
2. Enter VFO mode ,output 1GHz

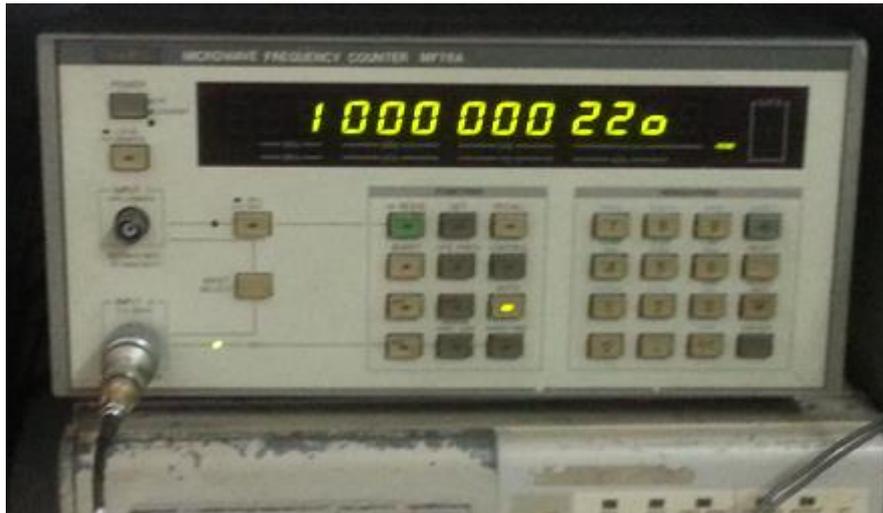3. Used frequency counter test nwt4000 output frequency

4. Options:

5. Input frequency counter frequency unit is Hz，press OK, frequency calibration complete。

Special tricks if your counter does not go to 1GHz:

If you counter does cover 100MHz then use a gate time of 10sec to read the frequency with at least 10Hz resolution , set the VFO to 100MHz and write down the measured frequency e.g. 99.99931MHz . Then write down the frequency as if it was 10x higher with 1 Hz resolution e.g. 999999310Hz and set the VFO to 1GHz and enter 999999310   into the DDS Clock (Hz) in the Settings/Options/ menu point. Then the frequency is calibrated to within 1kHz at 4.4GHz. When measuring the 100MHz output after calibration You may experiment with the 1 Hz settings to get closer to 100MHz. Most likely you will hit the correct frequency with less than 50Hz error