VNA for looking at the resonator

Friday, February 17, 2023 3:14 PM

- Put in the sample bla bla bla
- On the ZNB 20 - VNA 100kHz-20GHz - you can manually look at the resonator peaks
  - you can choose start-stop
  - you can choose with what frequency
  - you can chosse with what span

- **On the computer - make a sweep to see all the resonators or do a powerscan when you want to focus on 1 resonator.**
- On the computer - In order to do a sweap:
  - Measurement editor
    - Add from server
      - Choose VNA
    - From *Channel* to *step sequence* drag the following:
      - VNA - start frequency (when it starts) choose the start frequency
        - Single point around 4.5 (it depends on, where you think the first resonator is goint to be)
      - VNA - start - when it stops
        - Singlepoint 8.5 (depends on, where the last resonator is going to be)
      - VNA output power - between 0-10 dBm
      - VNA - number of points 10 k
      - VNA - IF bandwith 100 Hz (Superheterodyne to improve the signal to noise ratio) - can change the sweeping time. or if it is too noise, you put it even more down, but then the sweep takes longer).
    - Channel
      - you should choose the S21
    - Add a log name!
    - Then you press *Start Measurement* - and the data will come in log Browser - when you press start, the window will turn into another window
    - After the scan, the data will appear in the *Log Browser*
      - You can open the *Log Browser* by clicking on window -> Show Log browser.

  - Log browser - In the log browser, all your scans will appear.
    - you doubleclik on the data what you want to see.
    - Then *Log viewer* opens and you can see your graph
      - You always want to click the *Plot in dB*
      - You can scroll in on the mouse
      - You can go from side to side by holding in the scroll and move the mouse
      - you can find the X-Y coordinates by clicking on the dotted line cross - use for later
      - You can even measure a frequency range by By choosing *Range, vertical - Use for later*
    - If you have done a new sweap, you don't have to close the window in order to see the new data, you just have to *Reload*.

- On the computer - Do a powerscan - When you have found the points that you want to look more at:
  - Measurement editor
    - In the step sequence
      - Remove start frequency
      - remove stop frequency
      - VNA - Center frequency (and you have seen the center frequency in Log viewer).
      - VNA - Span around 1.5 MHz - or the range you chose before.

        - Change Step sequence
            - VNA Output power
                - start-stop (not single point)
                    - start (dBm) = 10
                    - stop (dBm) = -60
                - fixed step 2 dBm
            - IF bandwidth
                - 100 Hz
        - Change log-name
        - Press start measurement
    - In the measurement window which appears when you have started a measurement
        - Show Line plot
        - Show Image Map

- Impedence of all the cabels should be 50 Ohms!