KW35 48QFN
IMPEDANCE MEASUREMENT

SE TEAM

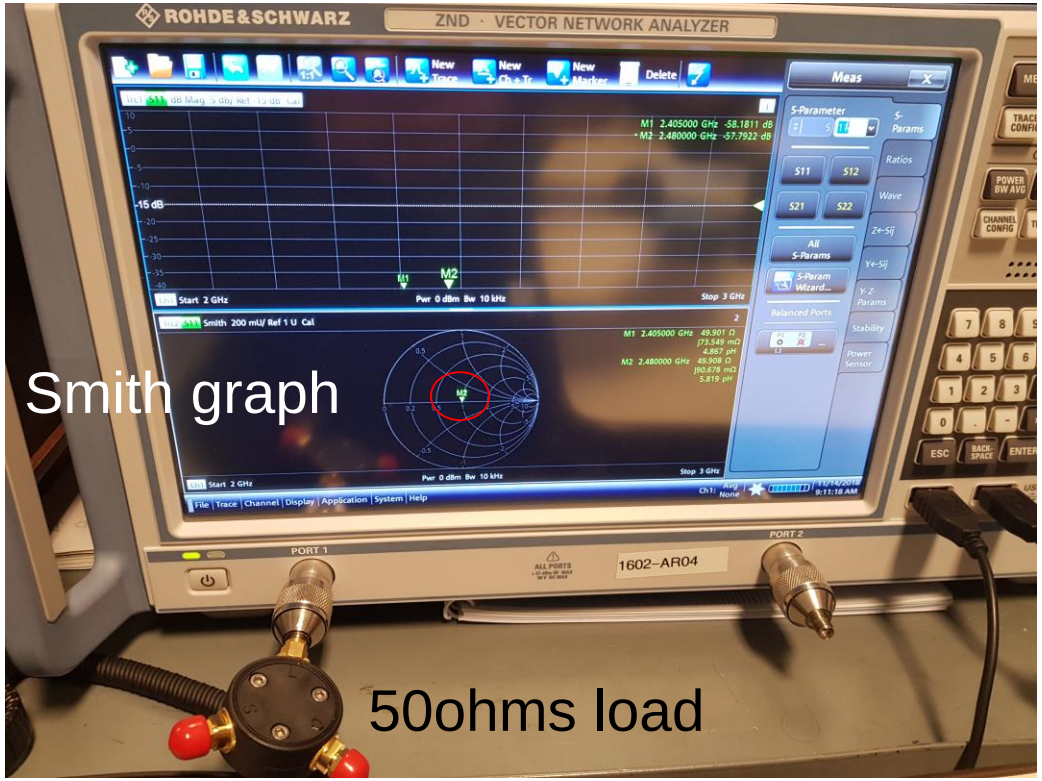
CAEN-FRANCE

NXP

SECURE CONNECTIONS
FOR A SMARTER WORLD

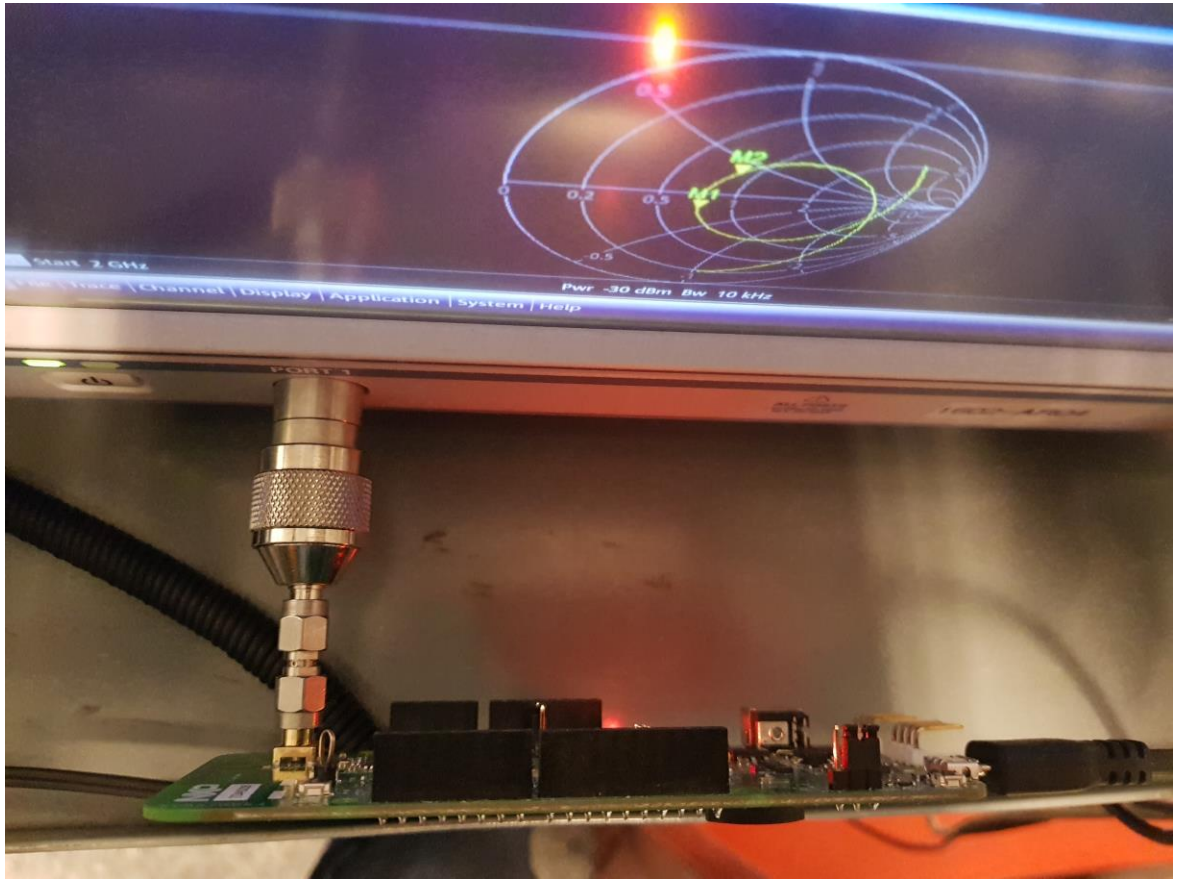
❖ How to calibrate the Network Analyser to measure return loss (S11)

- ❑ Calibrate one port of the network analyser from 2GHz to 3GHz.
  - Use the appropriate calibration tool (open, load, short)
  - Verify the network analyser spot is centered (red circle) with a load of 50ohms



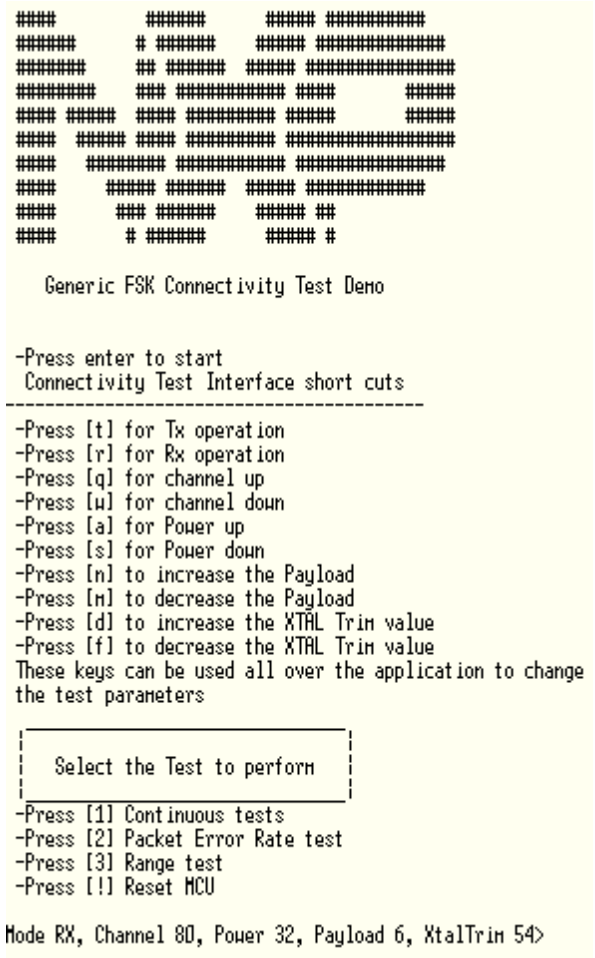
❖ How to connect the FRDM-KW36 to the network analyser

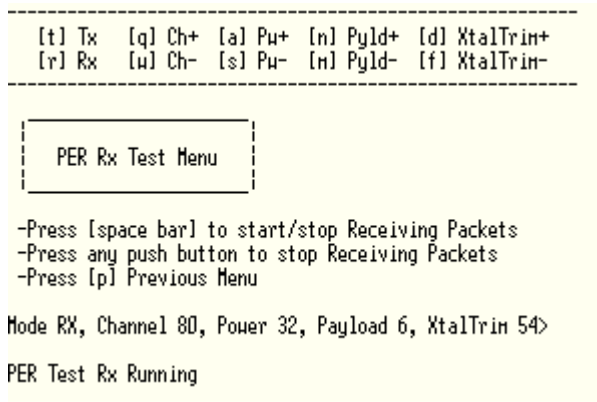
- ❑ Calibration has been done (previous slide)
- ❑ Connection must as short as possible from the port1 to the RF input of the FRDM-KW36



❖ How to set the FRDM-KW36 in Rx mode

- ❑ Return loss (S11) in Rx mode
  - Flash the connectivity software GenFSK on the FRDM-KW36
  - Set the program to put the KW36 in Rx continuous mode, frequency 2.44Ghz
    - Reset
    - Set the channel 80 (2.44GHz)
    - Select Packet Error Rate test [2]
    - Press the space bar
    - Rx mode is running



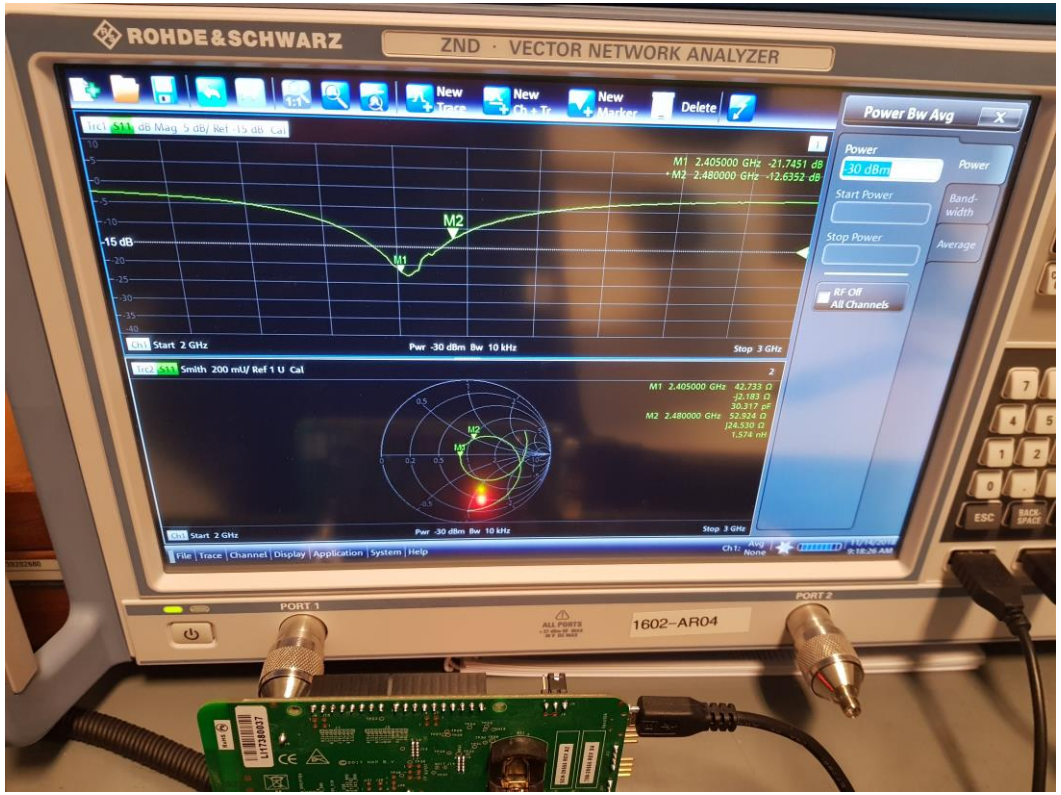


❖ Return loss (S11) : Results

❑ Warning: Network analyser output power (port1) is set to a low power level (-30dBm in our case)
In this case, AGC gains of the KW36 are set to the maximum to optimize the adaptivity at the sensitivity level.
Another condition to measure the S11 properly is to have a fixed AGC gains.
In case of AGC variation, the S11 value will varying also.

Results: S11<-10dB

-21.7dB < S11 < -12.6dB



BACKUP SLIDES

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