



# Integration of digital voltmeters with voltage dividers and current shunts (WP2)

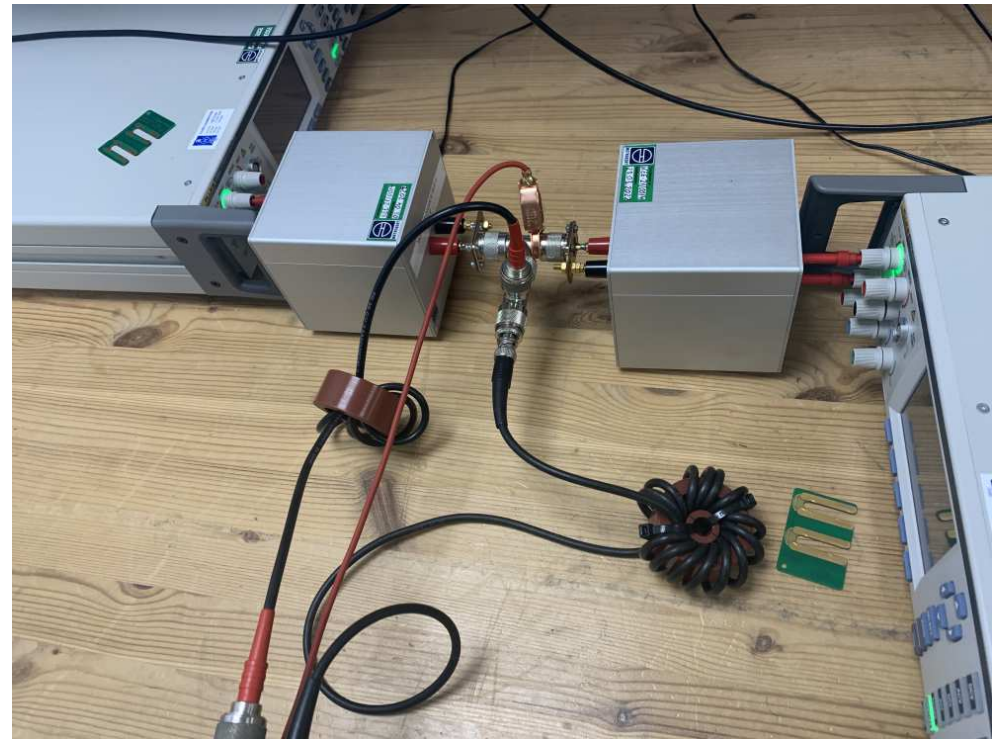
A. Pokatilov

DIG-AC Final Meeting, 19.-20.05.2022

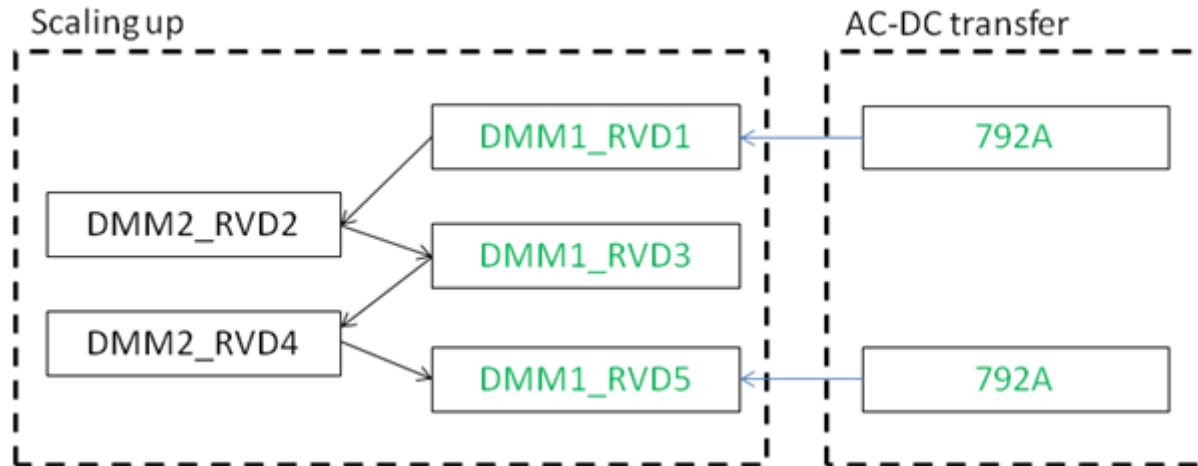


## Measurement setup

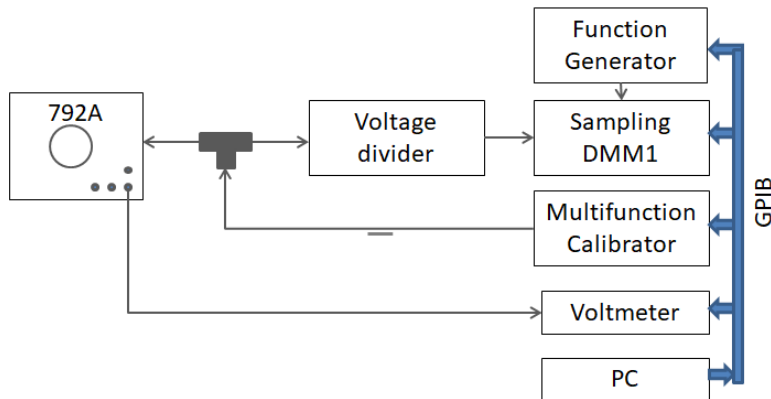
- Voltage scaling from 12 V to 220 V up to 10 kHz
- 2x 8588As
  - 1 V Range, sampling mode
- 5x resistive voltage dividers
- 1x ac-dc transfer standard



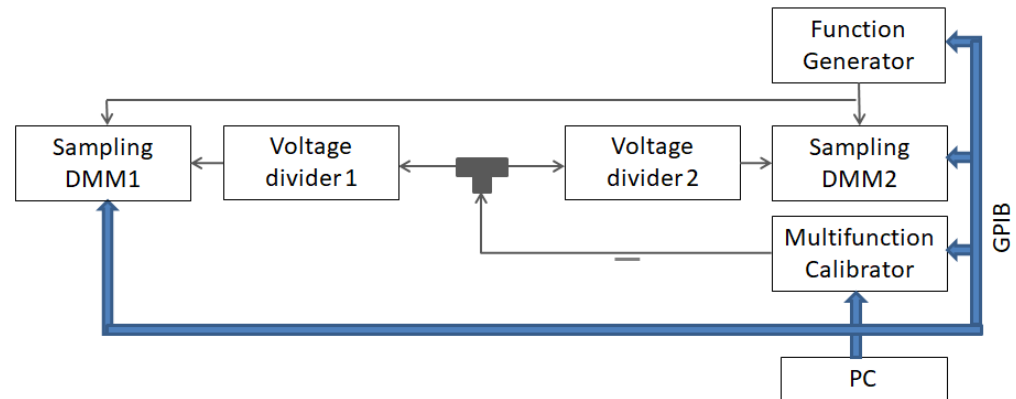
# Measurement procedure



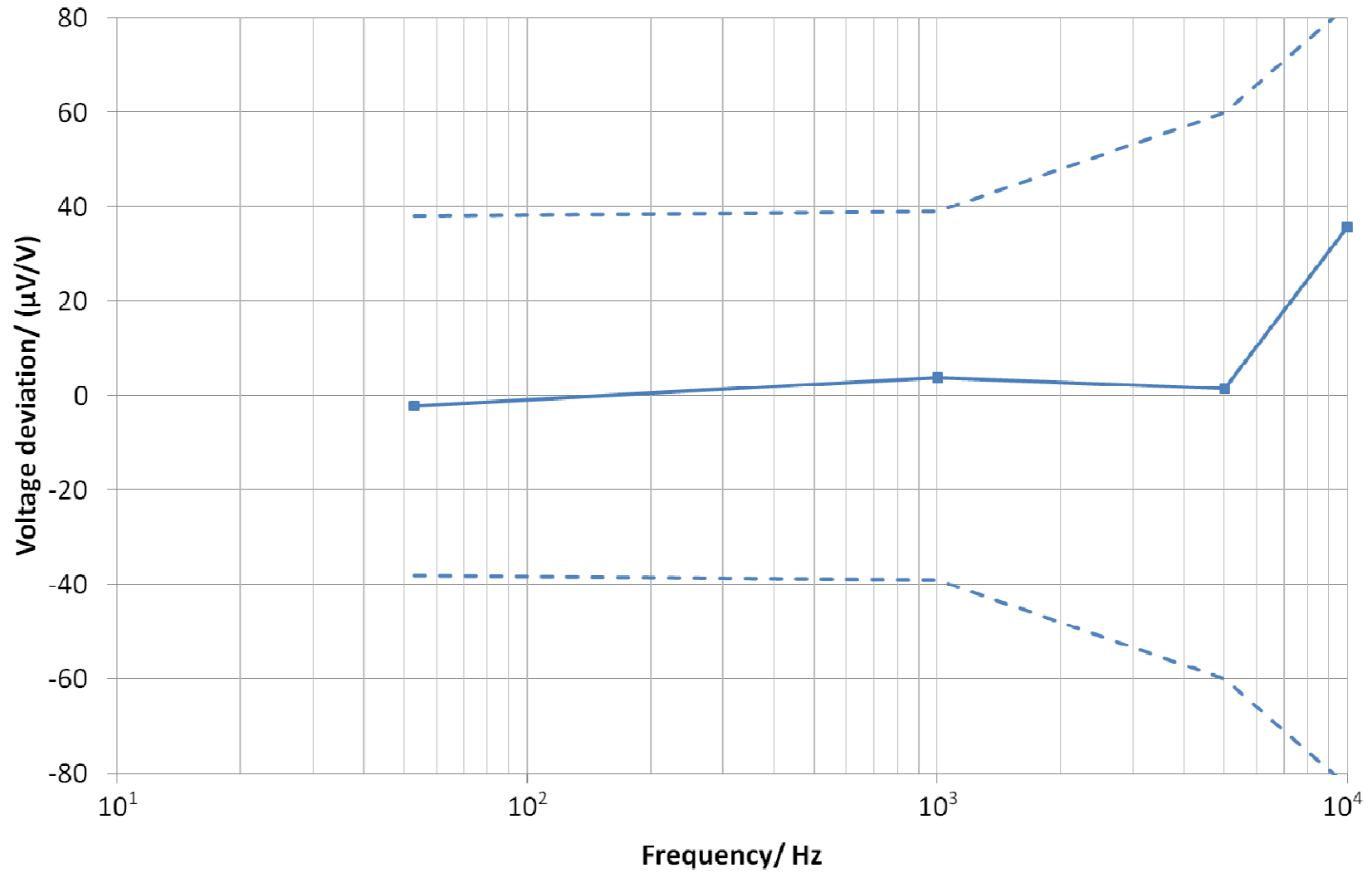
Ac-dc transfer at 12 V and 220 V



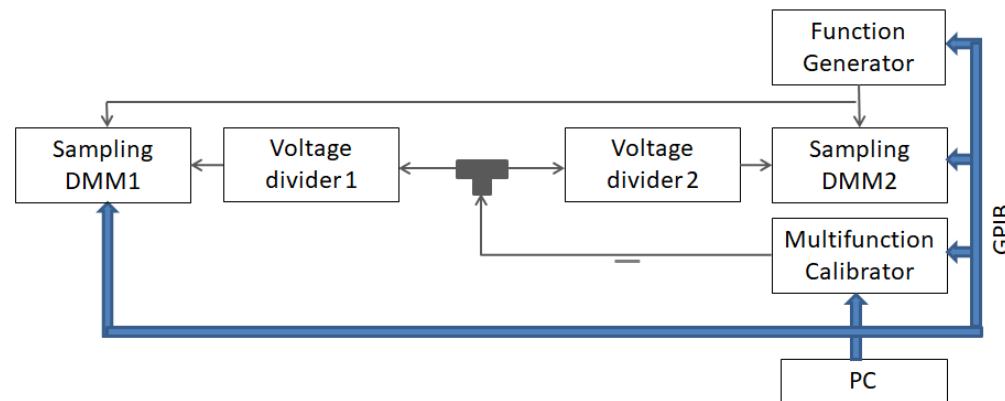
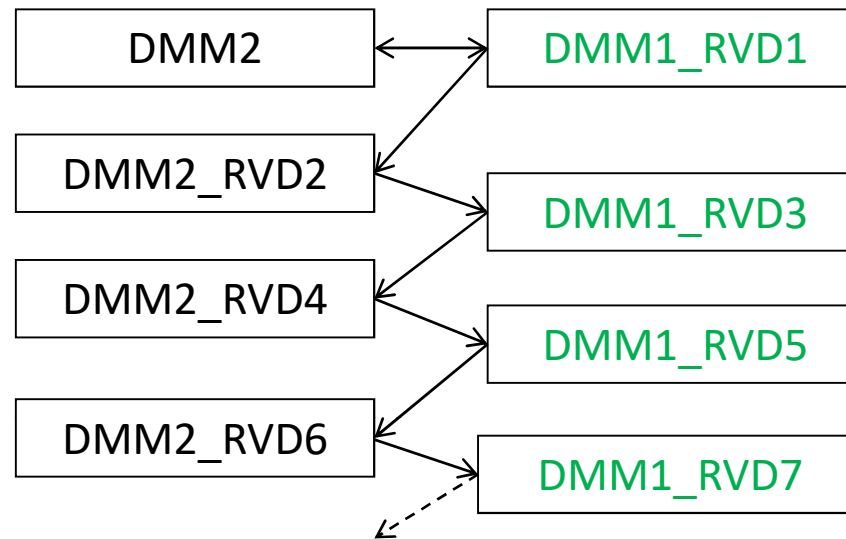
Scaling from 12 V to 220 V in four steps



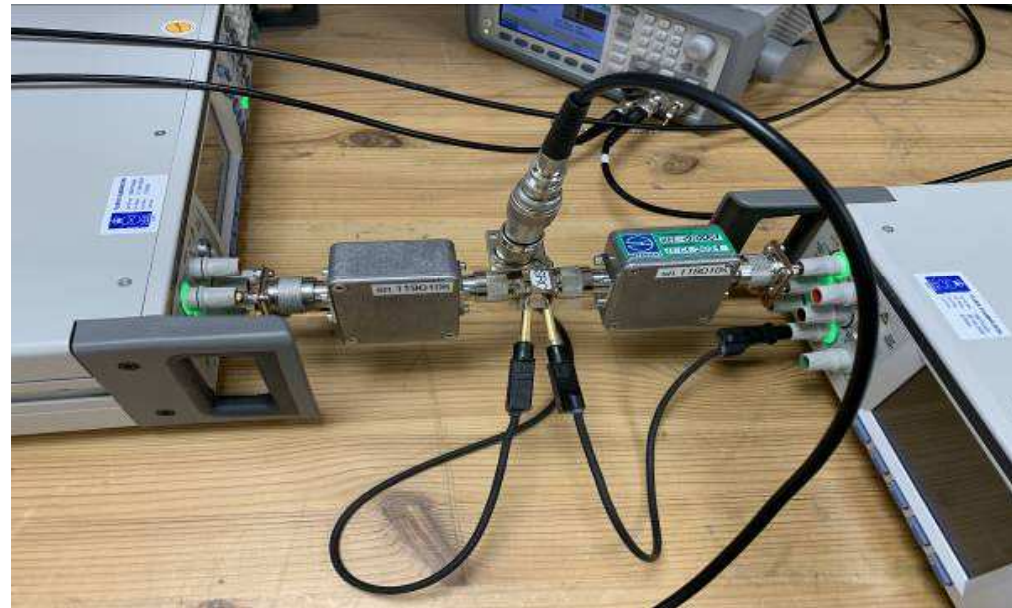
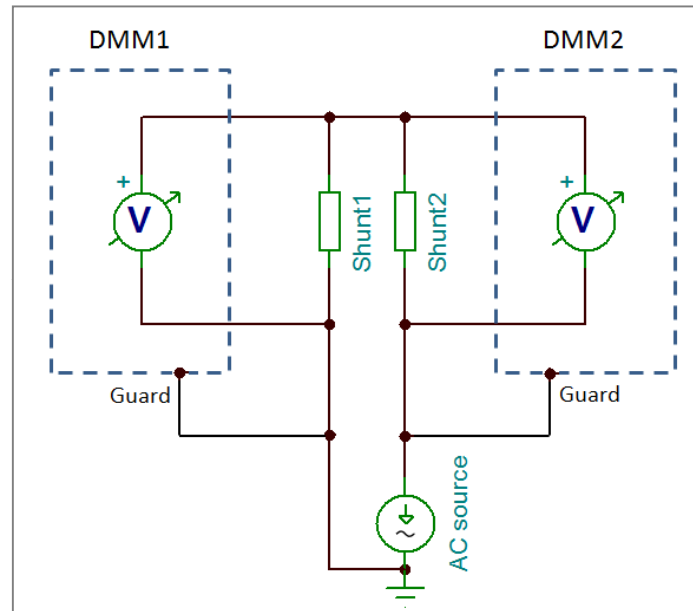
# Measurement results



# Phase angle error of voltage divider

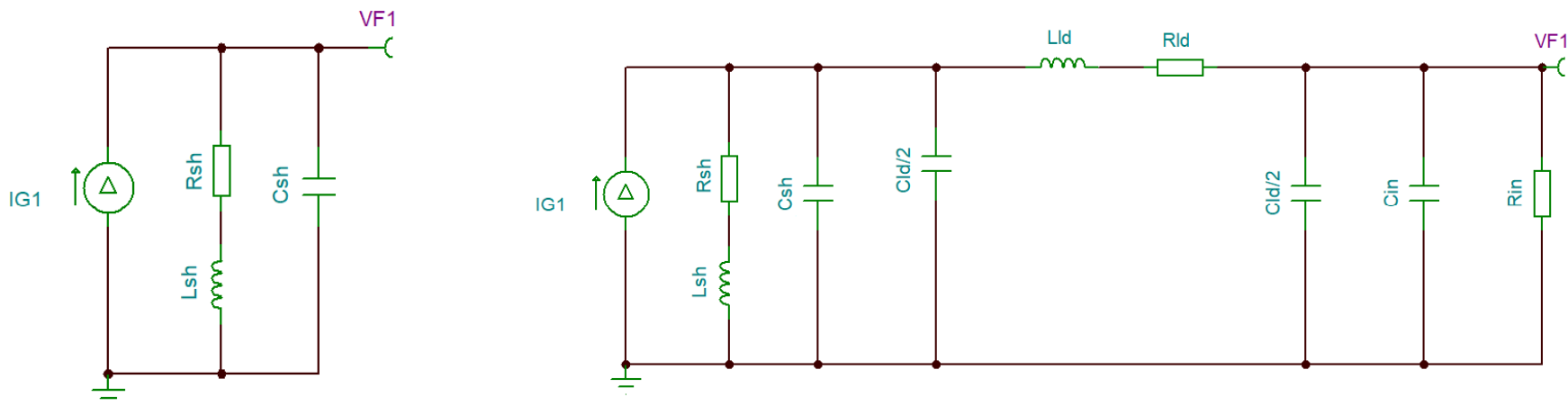


# Phase angle error of current shunt Measurement setup

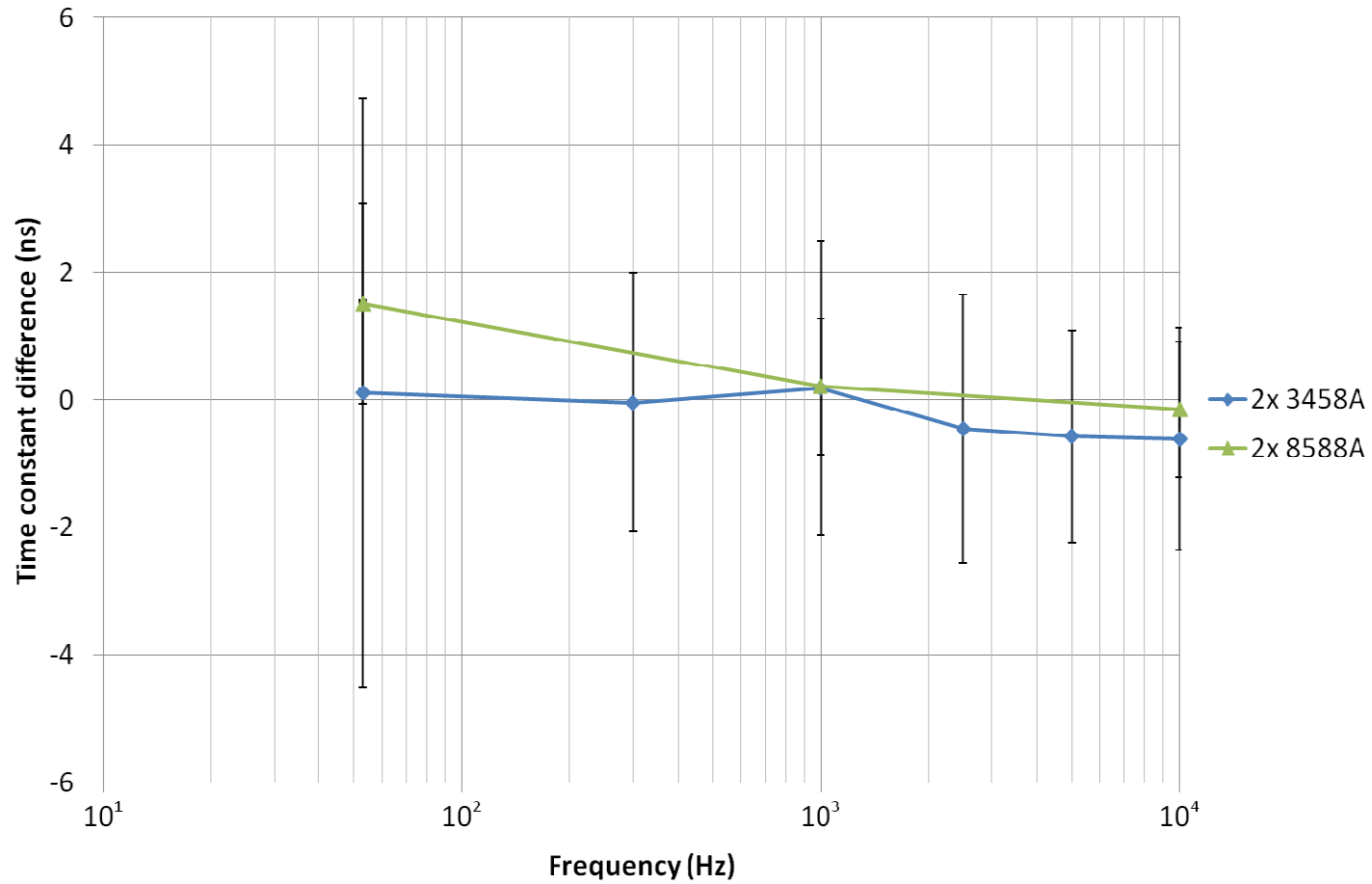


# Reference shunt and load (DMM)

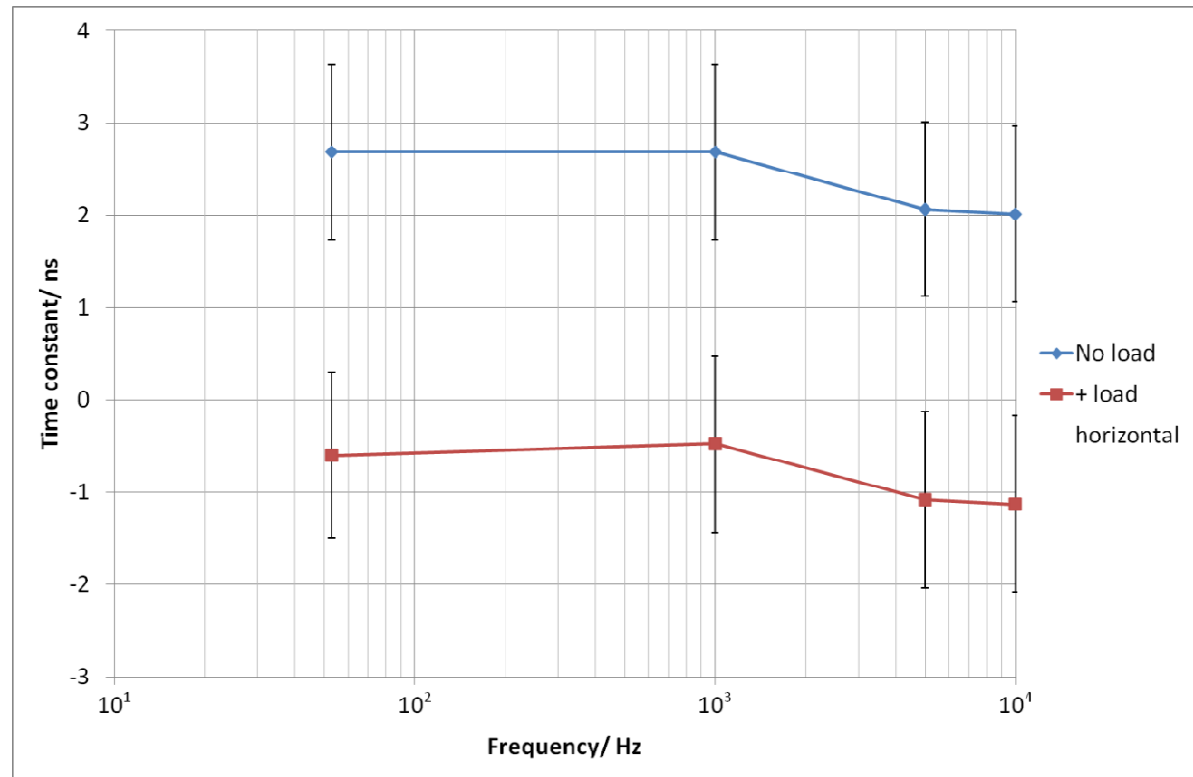
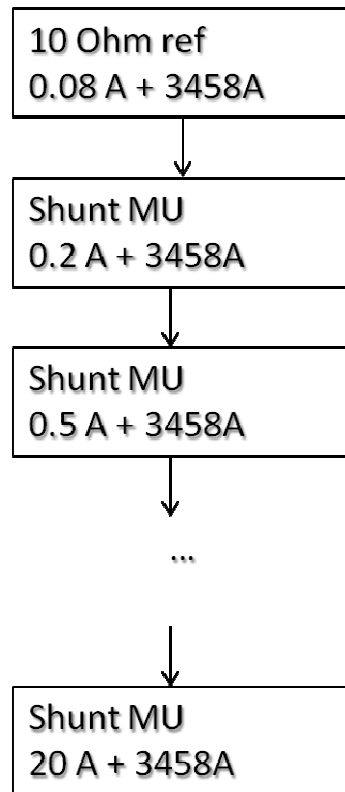
Circuit diagrams of a standalone shunt and a shunt connected to a digitizer:



# Time constant difference measured against modelled 10 $\Omega$ and 20 $\Omega$ references



# Step-up procedure and time constant of the reference shunt





# Täna tähelepanu eest!

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