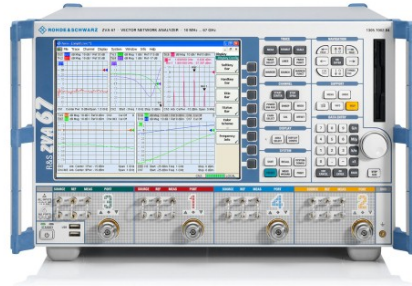


# 2018.02.13 Intro to R&S Vector Network Analyzer ZVA67 Device

**Description:** Today Prof. Hillert showed us around the newly purchased Vector Network Analyzer from Rohde & Schwarz with some impressive capabilities. This tool is a CFEL shared resource, and the intention is to develop it into a measurement station.

**Attendees:** Nicholas Matlis, Wolfgang Hillert, Arya Fallahi, Dongfang Zhang, Timm Rohwer, Tobias Kroh, Halil Olgun, Emma Kueny, Moein Fakhari

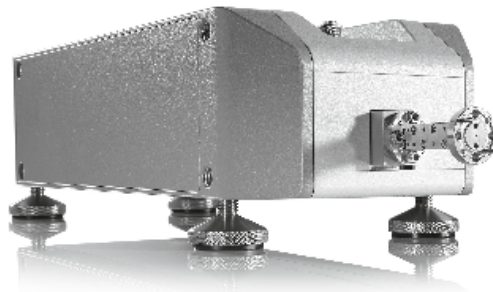
1. Device components
  - a. Main network analyzer



- i.
  - ii. model #: ZVA67
  - iii. Frequency range: 100 MHz to 67 GHz
  - iv. Two RF sources
  - v. Four channels
- b. Frequency Extension Modules
  - i. 75 - 110 GHz (two units)



- 1.
2. model #: ZVA-Z110
- ii. 220 - 330 GHz (two units)



- 1.
  2. model #: ZC330
- c. Calibration tools
    - i. ??
    - ii. ??

## 2. Next Steps

- a. Find a dedicated space for Network Analyzer
  - i. suggestion: put in same lab as Menlo TDS system to form metrology lab
- b. Attend operation tutorial by Rohde & Schwarz on March 5th
  - i. prepare some samples to test
- c. Determine required attachments to enable device & sample measurements
  - i. Horn antennae for 330 GHz
  - ii. sample holder for in-waveguide measurement
  - iii. R&S contact person: Jirke
- d. Talk to Mad-Max guys who also have a ZVA67 to get their impressions & help
  - i. Technician: Michael Matysek (Geb. 67b Rm. 3, x2952)
  - ii. Group Leader: Erika Garutti (Geb. 67b Rm. 31, x3779)
- e. Prepare to take some awesome data
  - i. Lithium niobate index & absorption
    1. at room temp, from 100 MHz to 330 GHz
      - a. can have small in-waveguide or horn-antenna-based approaches
      - b. Starting at low frequency will be easier and can be done using standard cables
      - c. once low frequencies are characterized, can try for higher frequencies using extension modules
    2. cryo temperature measurements
      - a. will require development of propagating beam to accommodate the cryo dewar.