



Metrology course

VNA Tools training course

VNA Tools is a free software developed by METAS for measurements with the Vector Network Analyzer (VNA). The software facilitates the tasks of evaluating measurement uncertainty in compliance with the ISO-GUM and vindicating metrological traceability. The software is available for download at www.metas.ch/vnatools. The three day course provides a practical and hands-on lesson with this superior and versatile software.

Date	<ul style="list-style-type: none">• May 4 to 6, 2021 VNA expert day on May 7, 2021• November 9 to 11, 2021 VNA expert day on November 12, 2021
Location	Federal Institute of Metrology METAS Lindenweg 50, 3003 Berne-Wabern,
Language	The course will be given in English.
Target audience	Engineers, scientists, technicians and students in metrology, calibration, research and production. Anyone who is required to perform accurate S-parameter measurements and to demonstrate metrological traceability.

Content The training has a focus on practical usage of the software. Participants bring a laptop to the course and will be guided in the use of VNA Tools through the different steps of a VNA measurement. This covers interaction with the VNA, data taking, VNA calibration, VNA error correction, data visualization, data export, evaluation of uncertainty contributions, uncertainty budget and more.

The course however goes beyond a tutorial in software usage. It touches a wide range of conceptual aspects related to VNA Tools and relevant for the quality of VNA measurements in general, just to name a few:

- the powerful generic uncertainty engine METAS Unclib (www.metas.ch/unclib),
- the determination of best measurement capabilities,
- the role of connector imperfections in the definition of calibration standards and best measurement practice.



Free VNA expert day	State of the art primary S-parameter traceability and how VNA Tools can support it.
Cost	CHF 2,800, lunches and breaks included, without travel and accommodation. VNA expert day free for course participants.
Registration	The number of participants is limited to 16. Registration by mail, at least one month before the course at sekretariat@metas.ch . METAS reserves the right to cancel the course if the minimum number of participants is not reached. Registrations are final and binding but it is possible to appoint a replacement if unable to attend. The fee is also due in case of no-show, drop out of the training or cancellation on the part of the attendee.
Contacts / Course details	Juerg Ruefenacht or Michael Wollensack: Juerg.Ruefenacht@metas.ch Michael.Wollensack@metas.ch