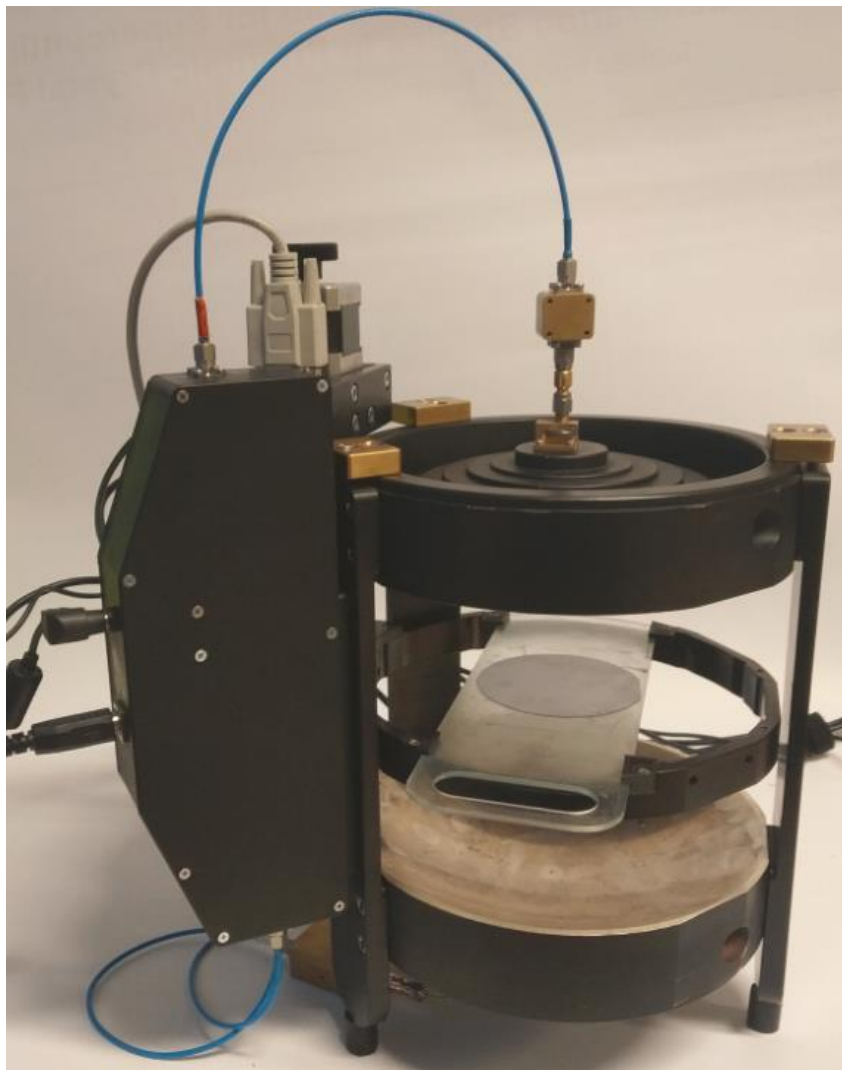


# MICROWAVE Q-METER 20-40 GHz



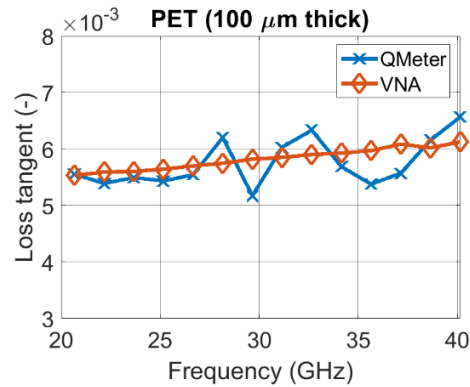
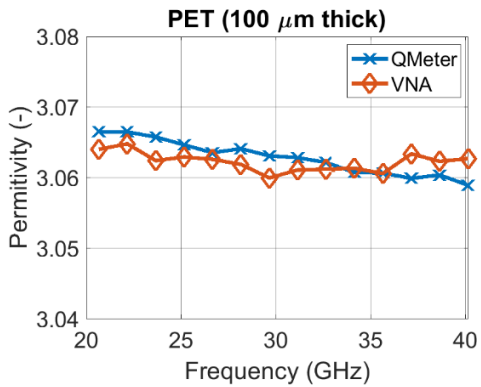
QWED manufactures a new model of **Microwave Q-Meter** dedicated to the measurement of dielectric properties of low-loss dielectrics with the aid of a **Fabry-Perot Open Resonator (FPOR)** in the frequency band of **20-40 GHz**. The Q-Meter can replace a laboratory-grade vector network analyzer (VNA) that is usually employed to measure the resonant frequency and the quality factor of the FPOR. It allows one to perform automated broadband and precise room temperature scalar measurements of the properties of high-Q resonators loaded with material samples in this frequency range. It is controlled with a specialized **software** that oversees the measurement process and extracts complex permittivity of the material under test based on the measured properties of the cavity.



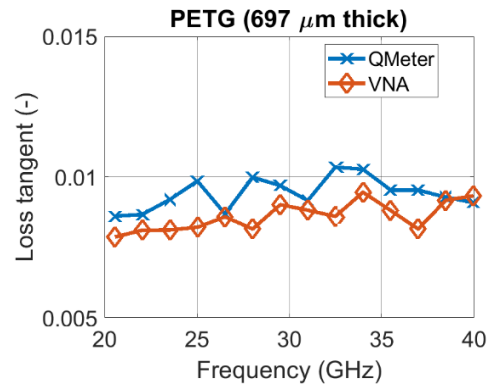
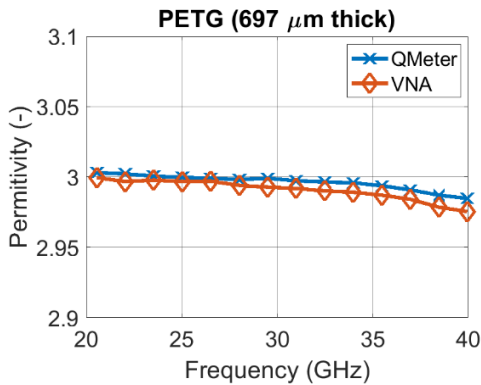
Q-Meter connected to the FPOR

The measurement setup consists of a computer, where the control software is installed, connected to the FPOR system and to the Q-Meter via an USB cable (or a VNA, if the Q-Meter is not used). The Q-Meter allows one to automatically extract material properties at ca. 14 frequency points corresponding to the consecutive  $TEM_{0,0,q}$  odd modes spaced every 1.5 GHz. The measurements take about 20 seconds per frequency point. Several samples of representative materials have been measured using a FPOR connected either to VNA or to the Q-Meter.

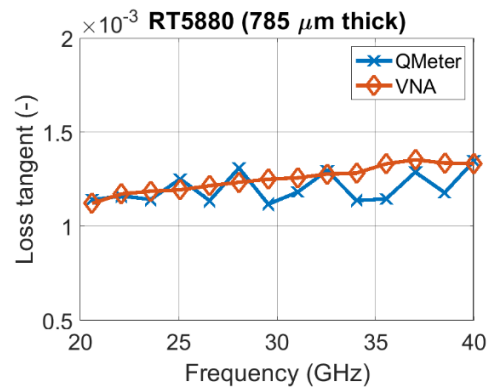
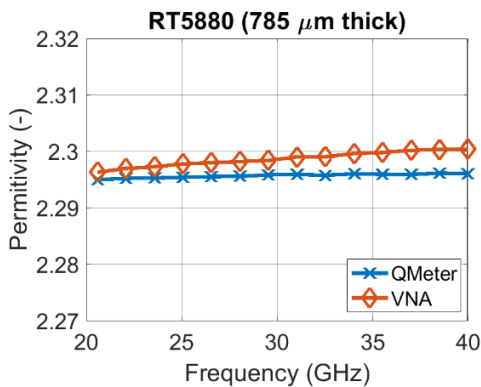
# MICROWAVE Q-METER 20-40 GHz



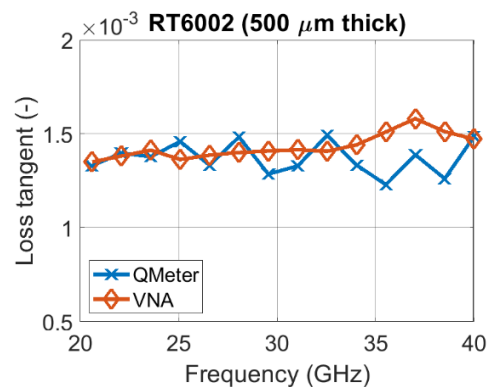
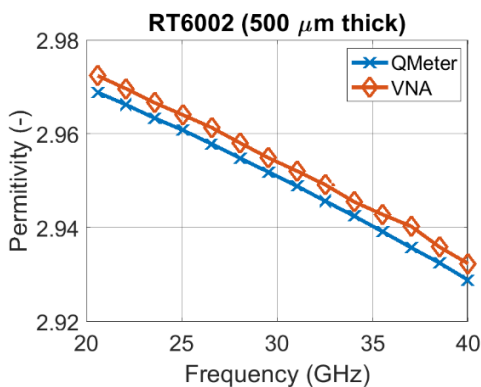
**PET ( $t = 100 \mu\text{m}$ )**



**PET ( $t = 697 \mu\text{m}$ )**



**RT5880 ( $t = 785 \mu\text{m}$ )**



**RT6002 ( $t = 500 \mu\text{m}$ )**