

# **Transient measurement results of pulse propagation in large GTEM cells**

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In recent years there has been an increasing threat that electromagnetic equipment can be influenced or damaged by transient electromagnetic fields. Transient tests are performed either with impulse radiating antennas (IRA) or TEM waveguides, especially with GTEM cells. Despite the fact that GTEM cells are often used for pulse tests there is little experience concerning the dispersion effects for short UWB pulses.

This contribution deals with measurements of short electromagnetic pulses (rise time of about 200 ps) in a GTEM cell located in Bern, Switzerland with large geometrical dimensions, i.e. a lengthwise extension of more than 15 meters. Aim of the investigation is to analyse to what extent a voltage pulse applied to the coaxial feeding port is distorted when transformed into a field pulse in the testing volume. Therefore a matter of particular interest is the pulse propagation in dependence of the treated field point, because of the large dimensions of the cell. Concerning the obtained measurement results it is now possible to calculate the impulse response in time domain of each electromagnetic field component in the distinct observation points in the testing volume. This method leads to a complete characterization of the regarded GTEM cell in time domain.