GTEM CELL: a fundamental tool able to emulate the effects of an incident plane wave (TEM mode) on the equipment under test in a very wide frequency band. This structure is obtained by replacing one port of a two-port TEM cell with a resistor/wave absorber termination [1]. The resonances of the non-transverse field components can be further avoided by physically removing the COMSOL® MODEL AND RESULTS:

Thanks to the internal symmetry, the device has been modeled taking advantage of the PMC (Perfect Magnetic Conductor) condition of the COMSOL® RF Module. Internal E and H fields have been simulated; the regions inside the cell with the most purely TEM propagating mode have been identified by means of the “axial ratio” [2].

EMScan RFX [3]: is a compact bench-top electromagnetic (EM) scanner able to perform a very near field mapping of the magnetic field; intended for antenna characterization, has been used here to assess the H field distribution in the GTEM internal test region. The mapped field values are in very good agreement with the simulated ones.

CONCLUSIONS: COMSOL Multiphysics® proved to be a very efficient tool for our analyses, allowing us to get reliable results in good agreement with a large series of experimental measures.

REFERENCES: