Application of the modified Wheeler cap method for radiation efficiency measurement of balanced electrically small antennas in complex environment

In this paper, application of a modified Wheeler cap method for the radiation efficiency measurement of balanced electrically small antennas is presented. It is shown that the limitations on the cavity dimension can be overcome and thus measurement in a large cavity is possible. The cavity loss is investigated, and a modified radiation efficiency formula that includes the cavity loss is introduced. Moreover, a modification of the technique is proposed that involves the antenna working complex environment inside the Wheeler Cap and thus makes possible measurement of an antenna close to a hand or head phantom. The measurement procedures are described and the key features of the technique are discussed. The results of simulations and measurements by the proposed method are presented and compared.

General information
State: Published
Organisations: Electromagnetic Systems, Department of Electrical Engineering
Contributors: Zhang, J., Pivnenko, S., Breinbjerg, O.
Publication date: 2010

Host publication information
Title of host publication: Proceedings of AMTA 2010
Keywords: Wheeler Cap Method, Radiation Efficiency Measurement, Balanced Antennas, Antenna-on-Body Measurements, Electrically Small Antennas
Source: orbit
Source-ID: 273993
Research output: Research - peer-review › Article in proceedings – Annual report year: 2010