09BM121 Upon te Influence of the Real Value of Human Body Capacitance in ESD Immunity Tests

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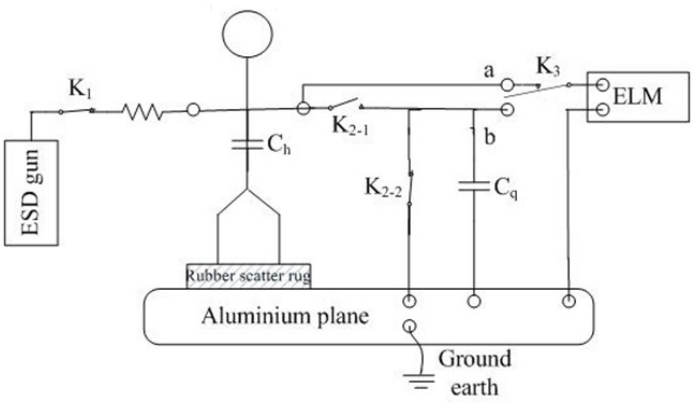
The first part of the paper is focussed on realistic measurements of Human Body Capacitance, performed in different position and environmental conditions. We here present (and compare) the obtained results while applying two different methods, the first based on the measurement of the influence of a precisely-known capacitance upon the human (alternative or continuous) potential with respect to earth, the second based on the measurement of the voltage decay time (the resistance well-known).

The second part aims to investigate the relationship between the real human capacitance (framed in the interval limited from 30 pF up to 600 pF, according to literature), but only in the more narrow interval 119 pF-214 pF, considering our measurements and the factual disturbing potential of the associated discharge on three different loads: 2 Ω (Pellegrini target, aiming to equalize, in conjunction with the standard RF impedance, the current, respective the displayed voltage on the scope), the previously mentioned 50 Ω RF impedance and 10 kΩ (reversely biased junction).

In order to evaluate the impact of the charged-capacitor in the ESD gun upon the results and repeatability of the susceptibility test, we have performed many registrations of the discharge currents shape with scopes with at least 2 GHz bandwidth. WE compared the real results with the simulated ones, obtained by using Cadence IC 5.3 package software.



Implemented set-up for measuring the human body capacitance by DC charging

09BM136 Monitoring cell monolayers during electroporation: Electrical impedance spectroscopy measurements

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Electroporation or electropermeabilization is a phenomenon observed when lipid bilayers are exposed to high electric field pulses becoming transiently permeable to molecules that under regular conditions are not able to penetrate through them. This change in molecular permeability can be monitored by changes in the electrical conductivity of these membranes. The aim of this study is to use electrical impedance spectroscopy to measure the process of electroporation applied on cell monolayers growing attached to standard multiwell plates. For this study we used a microelectrode assembly specifically designed for in situ performance of both electroporation and impedance measurements.

Keywords: Electrical Impedance Spectroscopy, Electroporation, microelectrode array.