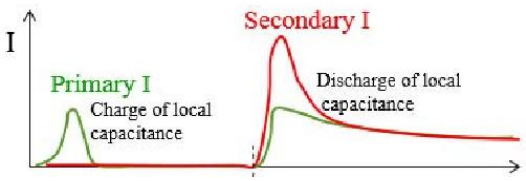
Bachelors/Master thesis



One Electrostatic Discharge causes a second discharge:

How to detect and how to determine its treat to electronic equipment?

Motivation

When a charged person touches something, they will discharge themselves via a small spark. If the discharged object is not grounded, a second spark may be emitted from the object to the ground. If the object is a small decorative part on a mobile phone, such as a camera ring, then a fast-rising spark current will be generated (with a rise time of less than 100 ps and a current of up to 30 Amps) very close to the electronics. The associated magnetic and electric fields could interact with the electronics and cause damage.
This situation could occur either at home or during testing of the robustness against electrostatic discharge. Due to the high risk of damage or disruption, it is important to detect and identify this 'secondary' electrostatic discharge. This thesis is based on the existing concept of doing this.

Key Facts:

- Design a sensor for RF signals from MHz to many GHz, connected to an oscilloscope.
- Dive into designing a software identifies secondary ESD and distinguishes it from other pulses (e.g., spectral methods) or other nice algorithms
- Collaborate closely with one of the world-leading mobile phone company through regular online meetings.
- To make a conceptual prototype.
- Tap into a wealth of experience and support from experts at the institute.

Your Profile

You are eager to learn. Prior knowledge and experience in electronics and programming is needed. Knowledge in electromagnetic compatibility and signal processing is welcome.

Organizational matters

- Start: as soon as possible
- Workplace: at the institute
- You can get hired for 20h/week

Contact/Supervision

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