

## Single Event Effect Measurements

One class of events characterizing the capability of modern electronics to operate under normal and elevated levels of ionizing radiation are the so called single event effects (SEEs). Such events appear more often at high altitude and space application, and are capable of causing wide variety of effects ranging from small glitches in the output signal to complete system failures. Under normal conditions SEEs are most likely to be caused by energetic protons and heavy ions interacting with the sensitive areas of the electronic devices and logically conventional testing for SEE sensitivity of the newly developed electronic circuits is carried out at accelerator (proton and heavy ion) facilities. However over the past 20 years pulsed femtosecond and picosecond lasers have proven to be an effective source for evaluation of SEE sensitivity of electronic devices. Such lasers provide easy spatial and temporal control over how the device under test is irradiated. The laser beam can be focused to irradiate much smaller sensitive areas compared to the case when charged particles are used for the testing. Additionally, the lasers do not cause device performance and operation degradation due to cumulative radiation dose effects, giving the flexibility to retest the device if desired.

### **Specifications**

Excitation wavelength    480-700 nm (OPA 9400, Coherent)  
   1100-1600 nm (OPA 9800, Coherent)

Imaging wavelength    1310 nm

Microscope                MPM200-SGP, Thorlabs

Objectives                x10, x20, x50

### **Settings**

This system uses the Verdi/Vitesse / RegA /OPA suite.