MOSFET Calibration Jig

- Quick and easy calibration
- Consistent positioning
- Reproducible calibrations
- Quick verification of beam flatness and symmetry
- Better degree of accuracy in high field gradients (IMRT)
- Allows for customization of build-up
- Surface entrance dose and Radiology applications

The MOSFET Calibration Jig (TN-RD-57-30) is designed for quick and easy MOSFET calibration with a simple set-up configuration. The jig reference lines can be easily aligned with the positioning lasers and linear accelerator light fields for 10 x 10 cm, 20 x 20 cm, and 30 x 30 cm fields. The use of the jig promotes easy and consistent positioning at the beam isocenter and, thereby, reproducible calibrations.

The MOSFET placement indentations not only aid positioning, but also prevent accidentally damaging the MOSFETs with build-up material during calibration. The staggered positioning reduces the influence of scatter from adjacent MOSFETs and the symmetrical design allows comparison of opposing MOSFETs to each other, and quick verification of beam flatness and symmetry.

The relatively thin 1 cm thickness of the MOSFET Calibration Jig provides a moderate amount of backscatter, but is thin enough to permit customized irradiation set-up with additional backscatter and build-up materials.

TN #102033.02

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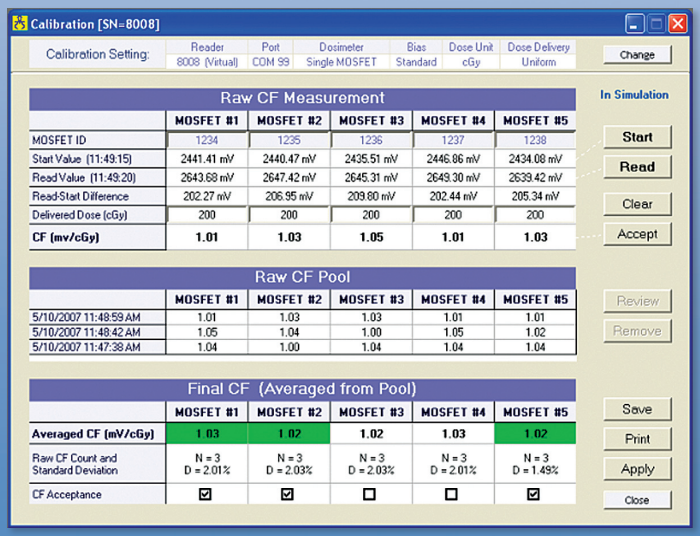
Calibration with the mobileMOSFET Calibration Module Software

Calibration becomes even easier when the MOSFET Calibration Jig is combined with the mobileMOSFET Dose Verification System. The mobileMOSFET is completely software driven and contains a Calibration Module. The Calibration Module collects the calibration dose repetitions in a viewable pool of data. The software automatically calculates the Calibration Factor (CF), the average CF and the percent standard deviation for each MOSFET dosimeter. The CF data file can also be printed, saved, loaded, and edited.

Other Applications

In addition to calibration, the simplicity of the calibration jig lends itself to customized use in phantom-based measurements. The MOSFET arrangement can be used for dose measurement as a two-dimensional array that provides an inexpensive and quick validation of dose distribution. Due to the small active volume of the MOSFET (2×10^{-5} mm^3), there is limited dose averaging and therefore a better degree of accuracy in high field gradients. The standardized set-up geometry provides simple entry of positional data to treatment planning software, which can be compared to absolute MOSFET dosimeter measurements. The MOSFET dosimeters are also isotropic (± 2% for 360°) and have negligible energy dependence, which makes them an ideal dosimeter for IMRT validation.

Typically calibration measurements are done at D_{max}, but the MOSFET Calibration Jig places the dosimeters on the surface of the jig to allow for customization of build-up. With no build-up applied, the Calibration Jig can be used for entrance CF estimation during surface dose measurements in radiotherapy or radiology applications.



Calibration is made even easier using the **mobileMOSFET Software Calibration Module** along with the **Calibration Jig**. The jig allows for consistent placement every time while the software helps you determine your calibration factors with a few clicks of your mouse. The result is consistent and reproducible calibrations.

Specifications:

Material: ..... Acrylic (PMMA)
Dimensions: ..... 30 cm x 30 cm x 1 cm
Field Sizes: ..... 10 x 10 cm; 20 x 20 cm; 30 x 30 cm
MOSFET grooves: 5
Weight: ..... 1.07 kg