

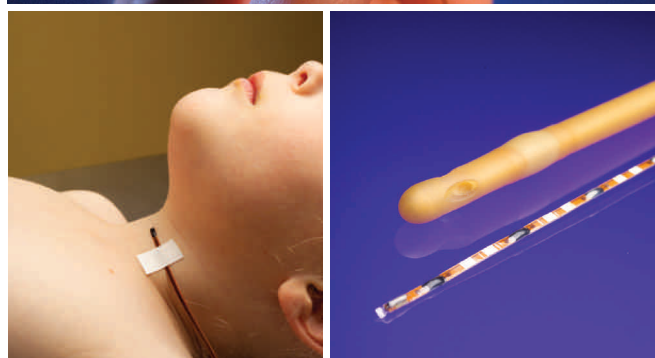
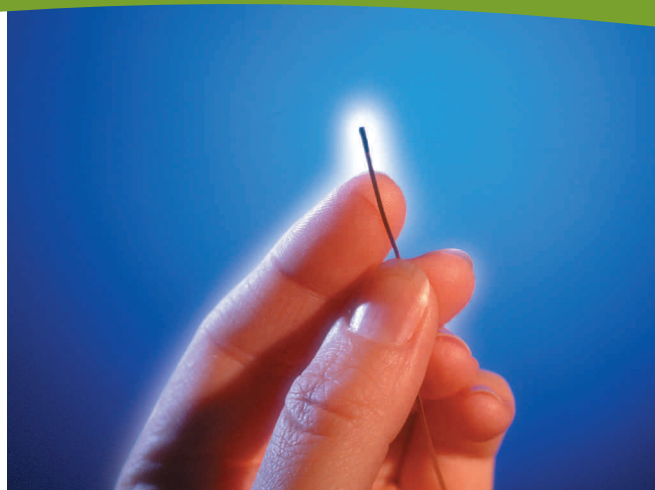
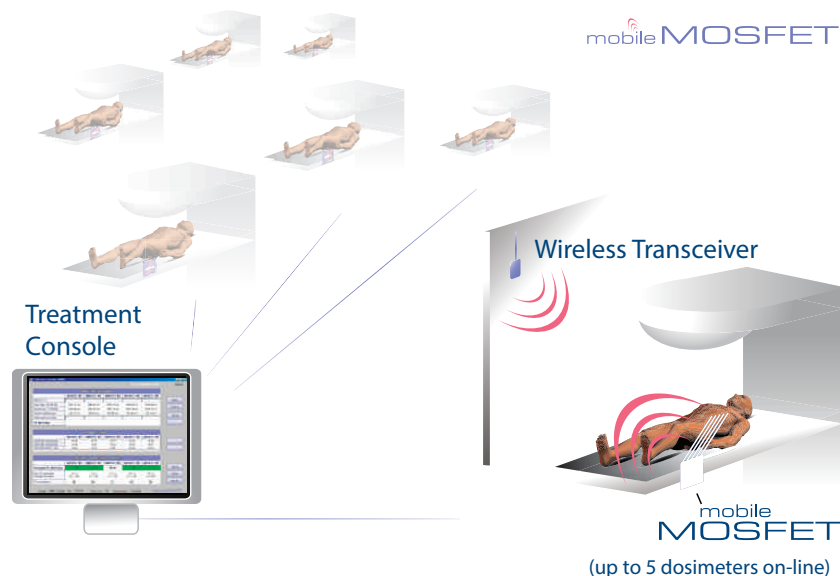
## mobileMOSFET Wireless Dose Verification System

The mobileMOSFET Dose Verification System (TN-RD-70-W) takes MOSFET dosimetry to the next level.

The mobileMOSFET is a portable, easy to use, seamlessly integrated system that simplifies dosimetry and minimizes QA time, making it ideal for a busy radiotherapy center. For example, one Reader Module can be easily shared between multiple treatment rooms (with LAN connections and additional transceivers).

This new wireless system is entirely software driven, allowing for remote control of one or more systems from a PC. The system consists of Remote Monitoring Dose Verification Software, wall-mounted Bluetooth™ Wireless Transceiver, and a small Reader Module that acts as a channel between the MOSFET and software, and provides a final dose report for patient records. Up to five MOSFETs or one Linear 5ive Array can be plugged into one module. This provides easy mobility within the treatment room. The PC is on-line with the Reader Module and dose is obtained in real-time.

### mobileMOSFET System Configuration



MOSFET dosimeters are small, light-weight, unobtrusive, and versatile. Pictures above show the small size of the microMOSFET, a high-sensitivity MOSFET being used to measure scatter dose to the thyroid, and the Linear 5ive Array for use in brachytherapy.

### Applications

- ▶ Routine in-vivo dosimetry
- ▶ One or multiple field measurements
- ▶ First dose; treatment plan verification
- ▶ Brachytherapy
- ▶ IMRT in vivo, QA and phantom work
- ▶ Intracavitary measurement
- ▶ IGRT/Tomotherapy
- ▶ Radiology

### Dose Points

- ▶ 1 - 5 on-line
- (Up to 40 on-line with additional Reader Modules and transceivers)



## Software features

- Interactive, 2-way on-line communication between a PC and the Reader Module
- Dose obtained in real-time
- Able to perform all dose data measurements with a few mouse clicks
- Calibration feature enables quick and easy calibration of the MOSFETs
- Capability to assign Calibration Factors, Correction Factors, and Target Dose to each MOSFET
- Final dose and percent deviation from target are automatically calculated
- Export to MS Excel, Word, PDF and/or text files
- Set interval read times to sample multiple doses during treatment (automatic or manual control)
- With multiple systems and transceivers, one PC can read MOSFETs in multiple treatment rooms simultaneously
- Patient records can be saved/imported and printed and are password protected
- Final dose report provided

## The MOSFET dosimeter

- One dosimeter/calibration factor for all photon and electron modalities
- Isotropic ( $\pm 2\%$  for  $360^\circ$ )
- Active region of  $0.2 \times 0.2$  mm
- Permits pinpoint measurement without patient shielding
- Dose rate and temperature independent
- Unobtrusive in procedures
- Lightweight and flexible
- Multiple dosimeter capability with one Reader
- Standard MOSFET is 2.5 mm wide
- microMOSFET is 1 mm wide
- Linear 5ive Array – 5 dose points on one flex



## Hardware features

- Bluetooth™ transceiver (wall mounted)
- Small Reader Module (17.8 cm x 15.9 cm x 4.2 cm)
- Wireless (up to 10 meters), portable, and mobile
- Contains reader, Bluetooth transceiver, dual bias supply settings (high and standard), ports for five MOSFETs, and a port for one Linear 5ive Array
- One Reader Module can be used for 1-5 MOSFETs or one Linear 5ive Array
- Battery operated (rechargeable; >20 hours of typical use)
- Built-in quick smart charger (<3 hours)
- Software supports up to 8 Readers and 40 MOSFETs simultaneously
- Portability between multiple treatment rooms

## MOSFET Sensitivity

Under Full Build-up:

- 1 mV/cGy on standard bias
  - 2.7 mV/cGy on high sensitivity bias
- Higher sensitivities available

Under X-ray Energies:

- 9 mV/R on high sensitivity bias

Dose	BIAS SUPPLY	
	Standard	High
200 cGy	<2%	<0.8%
100 cGy	<3%	<1.2%
20 cGy	<8%	<3%

System Dose-to-Dose Reproducibility at  $1\sigma$



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