

AbstractID: 11751 Title: Agreement of Different Methods of Measuring Relative Electron Cone Output

**Purpose:** To determine suitability of various methods of determining relative output factors of electron cones. **Method and Materials:** The electron cone factors of a Varian accelerator were measured by several different methods: the daily output check device (Atlas QA3), electron diode, scatter diode, 0.125 cc ion chamber and 0.6 cc Farmer chamber. The ion chambers were used in water and plastic water with both positive and negative polarities. The diodes were used on top of plastic water with added bolus and the scatter diode was also used in a water phantom. **Results:** All methods had variations in relative output factor of about 0.5%. They agreed with one another within about 1% as long as the size of the detector was small relative to the cone size. The Farmer chamber gave erroneously low results for a 4x4 cone size due to a portion of the ionization chamber being within the penumbra region. **Conclusion:** The practice of using the most convenient set-up (daily output check device) for verifying cut-out factors is justified by the good agreement with other methods. Very small cut-outs require special considerations and may require diode or film measurements for good results.