

# $\gamma$ and $\delta$ Values for Additional Chambers for the DPP Method in DIN 6800-2

## Description

Correction factors for insufficient charge collection in the measuring volume of the ionization chamber can be determined with the DPP method for a pulsed beam. If the dose per pulse (DPP) at the measurement point is known, the correction factor can be calculated by [DIN 6800-2].

$$k_s = 1 + \frac{\gamma}{U} + \frac{\delta}{U} \cdot D_p$$

$D_p$  is the absorbed dose to water per accelerator pulse, expressed in mGy,  $U$  is the chamber voltage in V and the coefficients  $\gamma$  and  $\delta$  are listed in a table [Bruggmoser 2007].

For additional PTW ionization chambers,  $\gamma$  and  $\delta$  values can be used as listed in table 1 below.

| Chamber type       | $\gamma$<br>V                                                 | $\delta$<br>V/mGy | Dose per pulse<br>mGy | Chamber Voltage<br>V |
|--------------------|---------------------------------------------------------------|-------------------|-----------------------|----------------------|
| PTW 23331 Rigid    | 0                                                             | 5.68              | 0.25 - 1.5            | 100 - 400            |
| PTW 30015 Rigid    | 0                                                             | 5.68              | 0.25 - 1.5            | 100 - 400            |
| PTW 31003 Flexible | PTW suggests to use the same values as for PTW 31010 Flexible |                   |                       |                      |
| PTW 31013 Flexible | PTW suggests to use the same values as for PTW 31010 Flexible |                   |                       |                      |

Table 1: Values for  $k_s$  calculation with DPP method for chambers not listed in DIN 6800-2

[DIN 6800-2]

Procedures of dosimetry with probe type detectors for photon and electron radiation –  
Part 2: Ionization chamber dosimetry of high energy photon and electron radiation

[Bruggmoser 2007]

Buggmoser, Saum, Schmachtenberg, Schmid, Schüle:  
Determination of recombination correction factor  $k_s$  for some specific plane-parallel and cylindrical ionization chambers in pulsed photon and electron beams

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