APPLICATION NOTE

RTI Electronics AB, Sweden **Revision A, October 2012**

Mammography Tomosynthesis correction factors PDP, R100B and R100

This application note describes the angular dependence for the Piranha Dose Pobe (PDP), R100B and R100. The angular dependence is described as well as the influence it gives on a continuous tomosynthesis scan over a range of angles.

Piranha Dose Probe (PDP)

R100B Dose Probe

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Introduction

Solid State detectors have a sensitive volume that can be approximated as very narrow surface. That gives a theoretical angular dependence that follows the cosine theorem. Then different detectors are designed differently in terms of collimation and material that attenuates and scatter more or less radiation in front of the sensitive volume.

This document describes the angular dependence for the RTI Dose Probes (PDB, R100B, and R100) in the mammography energy interval. Based on the angular dependence for discrete angles, correction factors are derived for use on mammography tomosynthesis.

Tomosynthesis correction factors

Table 1 below shows the correction factors to use for different incident angles of the radiation.

Table 1. Correction factors for discrete angles

Angle (θ)	Corr
0°	1,000
5°	1,018
10°	1,050
15°	1,087
20°	1,14
25°	1,20
30°	1,28
35°	1,38
40°	1,52

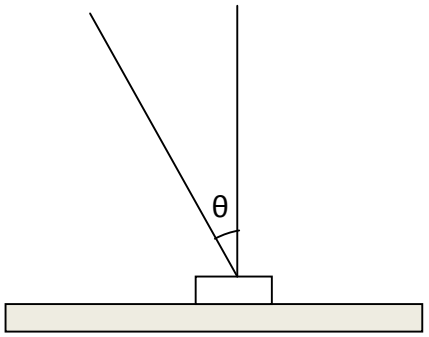

Table 2 shows correction factors for tomosynthesis scans of different scanning angle ranges. Note that these correction factors are valid only for a continuous scan speed and constant tube output over the entire scan. If not the factors in table 1 has to be used to calculate a weighted correction factor.

Table 2. Thomosynthesis Correction factors

Tomo range (θ)	Corr
±5°	1,009
±10°	1,021
±15°	1,036
±20°	1,055
±25°	1,076
±30°	1,10
±35°	1,13
±40°	1,16

Note:

In RTI Handheld display and in Ocean the ***Beam Correction Factor*** can be used to apply these corrections.

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