

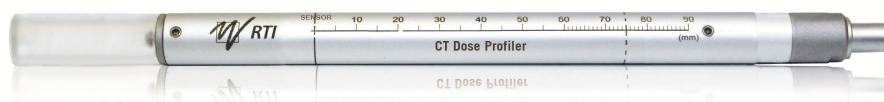
APPLICATION NOTE

RTI Electronics AB, Sweden

Revision A, January 2013

Mammography Energy Correction Factors CT Dose Profiler

This application note describes how to manually compensate the dose reading for the CT Dose Profiler (CTDP) for mammography radiation qualities.



Introduction

The CT Dose Profiler has a good direction independence. That makes it suitable to use in Computed Tomography, but also in other tomography applications. E. g. Cone Beam CT and Mammography Tomosynthesis.

However at lower radiation energies there is an energy dependence in the detector construction that has to be taken into account. The tables below shows the correction factors to use for different radiation qualities in mammography applications.

How to use the correction factors

The correction factors in the tables below shall be multiplied with the measured dose v (or dose rate) value. Make sure to select the correct table base on radiation quality. Then the correction factor found either in the table, or by sign the graph to the right. Below is an example.

Example:

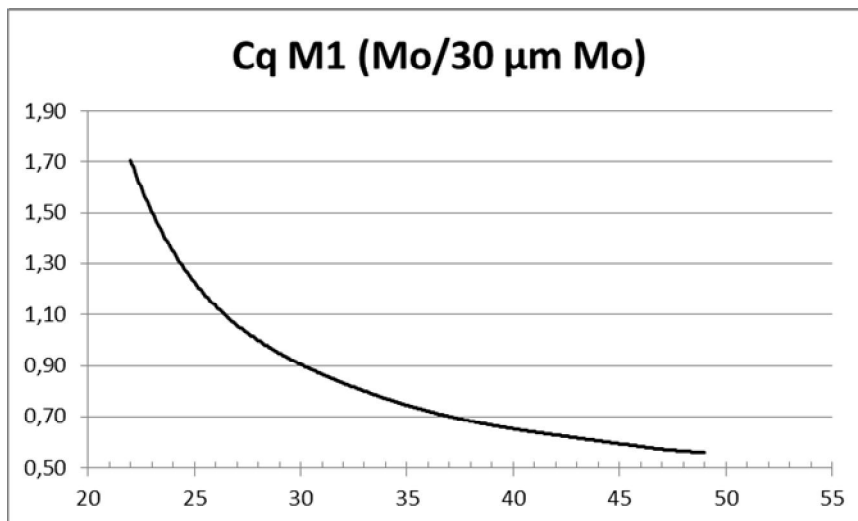
Radiation quality:	W/50 μm Rh
Set or measured kV:	36 kV
Cq from table 3 below:	0,83
Measured dose with CTDP:	12,3 mGy
Corrected dose:	$0,83 \times 12,3 \text{ mGy} = 10,2 \text{ mGy}$

M1 - Mo / 30 μm Mo

Table 1 below shows the correction factors to use for free in air measurements for Mo/30 μm Mo radiation qualities.

Table 1. Correction factors for radiation quality M1 – Mo / 30 μm Mo

kV	Cq
22	1,71
24	1,34
26	1,15
28	1,00
30	0,90
32	0,82
34	0,78
36	0,72
38	0,69
40	0,65
42	0,63
44	0,60
46	0,58
49	0,56
40°	1,52

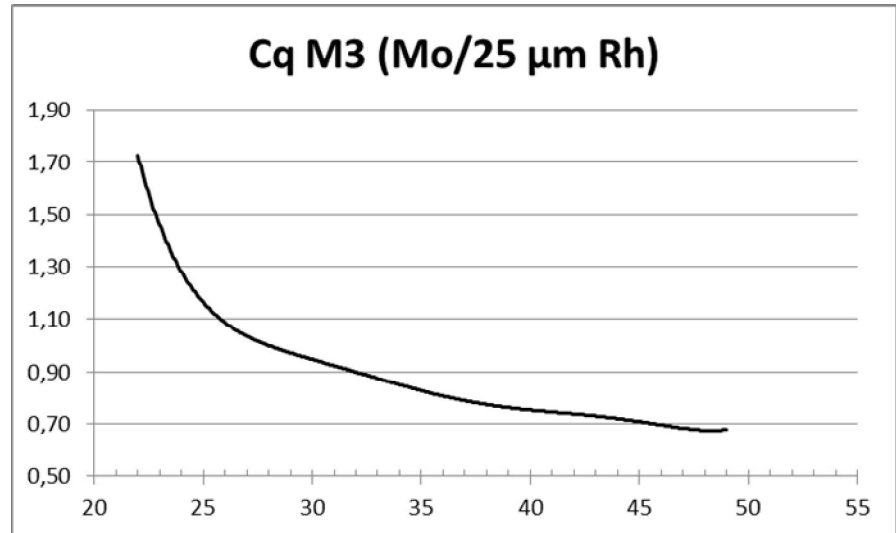


M3 - Mo / 25 μ m Rh

Table 2 below shows the correction factors to use for free in air measurements for Mo/25 μ m Rh radiation qualities.

Table 2. Correction factors for radiation quality M3 – Mo / 25 μ m Rh

kV	Cq
22	1,73
24	1,26
26	1,11
28	1,00
30	0,93
32	0,91
34	0,84
36	0,81
38	0,78
40	0,75
42	0,73
44	0,71
46	0,70
49	0,68
22	1,73

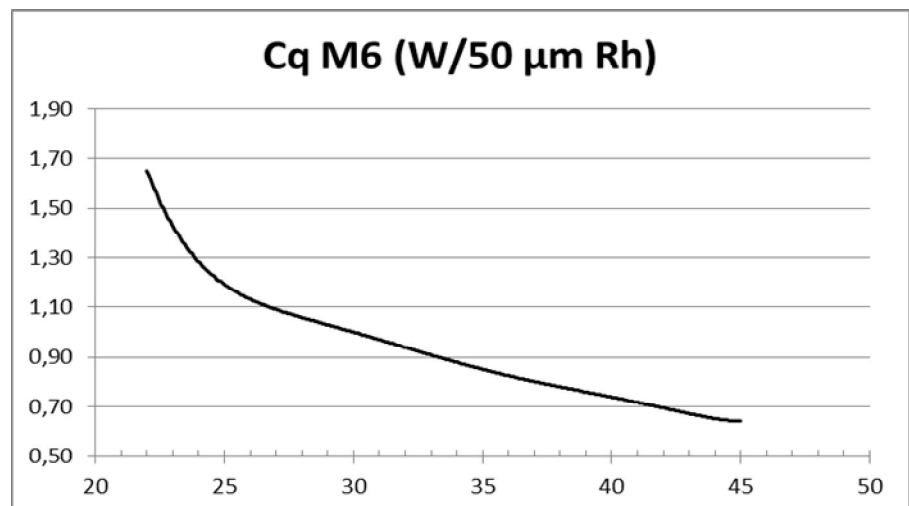


M6 - W / 50 μ m Rh

Table 3 below shows the correction factors to use for free in air measurements for W/50 μ m Rh radiation qualities.

Table 3. Correction factors for radiation quality M6 – W / 50 μ m Rh

kV	Cq
22	1,65
24	1,28
26	1,14
28	1,06
30	1,00
32	0,94
34	0,88
36	0,83
38	0,78
40	0,73
42	0,69
44	0,66
45	0,64



*** END ***