
APPLICATION NOTE

Black Piranha – kV on Small Focus GE Senographe Crystal and Crystal Nova

This application note describes how the Black Piranha measures kV on small focus on the GE Senographe Crystal EVA 1.3 and EVA 1.8 (Nova).

Note that the information hereafter is valid for Black Piranha with hardware version 5.5 or higher.



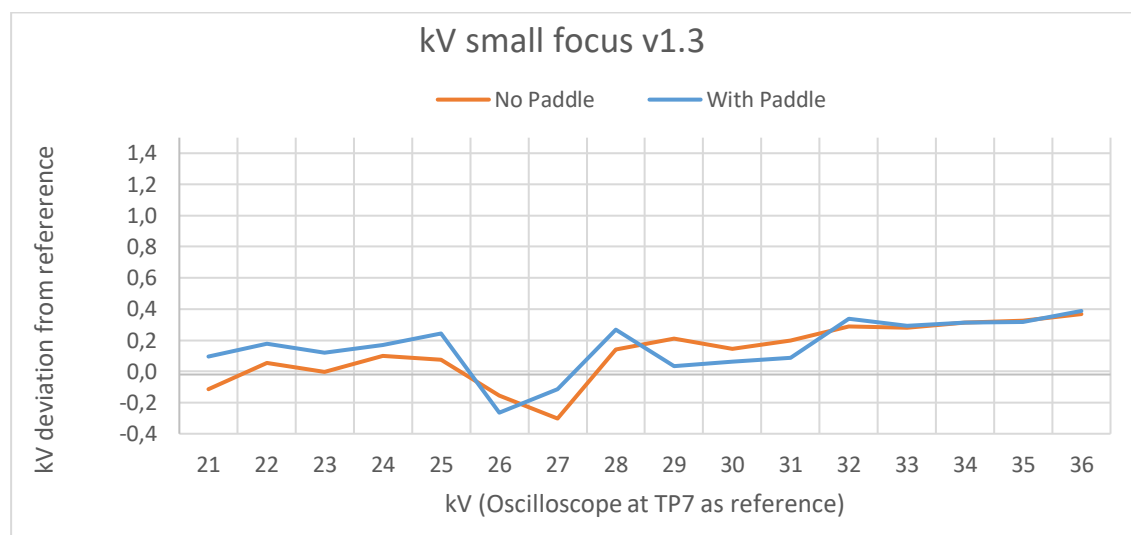
Introduction

Evaluation of the Black Piranha were performed for GE Senographe Crystal EVA 1.3 and EVA 1.8 (Nova).

Results

The graphs below are valid for small focal spot, and the detector positioned in reference position on the breast support, 6 cm from chest wall.

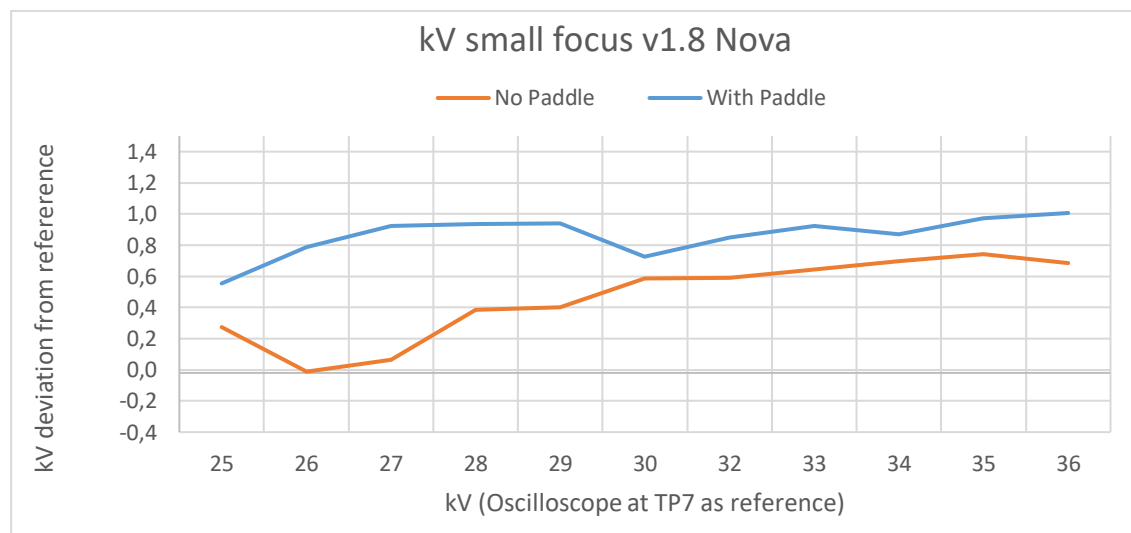
EVA 1.3



The Piranha result is valid for the standard W/Rh calibration (M6).

The result show that the Piranha has a maximum deviation from the reference of +0.4 kV towards the high kV settings.

EVA 1.8 (Nova)



The Piranha result is valid for the standard W/Rh calibration (M6).

The result show that the Piranha has a maximum deviation from the reference of +1.0 kV when compression paddle is in use. Without compression paddle the max deviation is 0.75 kV (at 35 kV).

Dose and HVL on small focus

The deviation in kV response has a minor effect on dose and HVL accuracy. However with the small variations show for the Senographe Crystal the increased uncertainty is neglectable in comparison to other influence parameters.

Correction Factors for Black Piranha

The graphs below show correction data for the Black Piranha with version 5.5, with calibrations after January 1, 2016. The corrections are valid to for kV measurements on Small Focus on the GE Senographe Crystal EVA v1.3 and EVA 1.8 (Nova). Verification and validation have been done at the GE plant in Seoul, South Korea.

All data below shows the correction to apply for a Black Piranha. The data is valid for small focal spot.

Crystal EVA 1.3

W / 50 μ m Rh (M6)

No Paddle

Measured kV	Black Piranha Correction
22	-0.1 kV
24	-0.1 kV
26	+0.2 kV
28	-0.2 kV
30	-0.2 kV
32	-0.3 kV
34	-0.3 kV
36	-0.4 kV

Paddle

Measured kV	Black Piranha Correction
22	-0.2 kV
24	-0.2 kV
26	+0.2 kV
28	-0.2 kV
30	-0.1 kV
32	-0.3 kV
34	-0.3 kV
36	-0.4 kV

Crystal EVA 1.8 (Nova)

W / 50 μ m Rh (M6)

No Paddle

Measured kV	Black Piranha Correction
25	-0.3 kV
27	-0.1 kV
28	-0.4 kV
29	-0.4 kV
30	-0.6 kV
32	-0.6 kV
34	-0.7 kV
36	-0.7 kV

Paddle

Measured kV	Black Piranha Correction
25	-0.6 kV
27	-0.9 kV
28	-0.9 kV
29	-0.9 kV
30	-0.7 kV
32	-0.8 kV
34	-0.8 kV
36	-1.0 kV

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