

# APPLICATION NOTE

## Black Piranha and Red Piranha on Hologic Selenia and Selenia Dimension

This Application Note describes the improvement in kV accuracy with the Black Piranha compared to previous versions of Piranha.

The data hereunder are valid for Black and Red Piranhas calibrated after September 1, 2015

This application note replaces formerly published application note 1-AN-52020-7.



## Introduction

This Application Note describes the improvement in kV accuracy with the Black Piranha compared to previous versions of Piranha.

With the Black Piranha a number of improvements have been introduced.

- The hardware has been changed to minimize position and angle dependence in mammography. It does no longer matter if the Piranha is placed with the detector area to the left or to the right.
- The internal algorithms in the calibration procedure have been improved so that deviation between every individual Piranhas are minimized.
- A range of manufacturer specific and machine specific calibrations have been introduced for even higher precision in measurements.

The graphs below show a comparison between Red Piranha with hardware version 2.x, and the Black Piranha with version 5.x. The Black Piranha with calibrations after September 1, 2015 is designed and calibrated to specifically match the Hologic Selenia Dimension, Selenia, and Affirm Prone units. It follows by that the Black Piranha is considered to represent a correct kV reading. Verification and Validation have been done at the Hologic plant in Danbury, US. Note that the Affirm Prone calibrations is available from June 1, 2016.

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

## Selenia Dimension

### W / 50 $\mu$ m Rh (M6)

Measured kV	Red Piranha Correction
22	+0.2 kV
24	+0.4 kV
26	+0.7 kV
28	+1.0 kV
30	+1.0 kV
32	+0.8 kV
34	+0.6 kV
36	+0.3 kV
38	+0.1 kV

### W / 50 $\mu$ m Ag (M10)

Measured kV	Red Piranha Correction
22	+0.4 kV
24	+0.2 kV
26	+0.1 kV
28	+0.9 kV
30	+1.4 kV
32	+1.4 kV
34	+1.2 kV
36	+1.0 kV
38	+0.7 kV

### W / 0.7 mm Al (M15)

No comparative data are available since the Red Piranha do not have the W/0.7 mm Al (M15) calibration.

## Selenia

### W / 50 $\mu$ m Rh (Red M6 vs. Black M17)

Ref kV	Red Piranha Correction
22	+0.0 kV
24	+0.2 kV
26	+0.2 kV
28	+0.3 kV
30	+1.0 kV
32	+1.0 kV
34	+1.3 kV
36	+1.0 kV
38	+0.6 kV

### W / 50 $\mu$ m Ag (Red M6 vs. Black M17)

Ref kV	Red Piranha Correction
22	+0.1 kV
24	+0.3 kV
26	+0.3 kV
28	+0.8 kV
30	+1.7 kV
32	+1.7 kV
34	+1.6 kV
36	+1.3 kV
38	+1.0 kV

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