Product Note

RTI | From Radiation to Information

New HVL and Total Filtration Algorithms for Single Phase with Piranha

Valid for Black Piranha and Red Piranha with hardware version 2.0 and higher.

Background

Now and then users have reported that the measured HVL and Total Filtration on single phase units have been under estimated. The Piranha algorithms have been improved based on several independent evaluations that have been done by different institutes and laboratories.
The figure below shows the effect of the new algorithms.

Shift in measured result after implementation

The table below shows the influence on the measured Total Filtration.

Before (Measured Total Filtration)	After (Measured Total Filtration)	Diff (%)
1.5	1.7	16%
2.0	2.2	12%
2.5	2.8	8%
3.0	3.2	7%
4.0	4.1	4%
5.0	5.2	3%

For quick HVL measurement the influence is similar but with some minor variations over the kV range.

Example:
When measure on a single phase unit with a total filtration around 2.2 mm Al equivalent:
After upgrade the Total Filtration will read 0.2 mm (or 12%) higher than before (2.2 mm Al equivalent instead of earlier 2.0 mm Al equivalent).
If tube potential is 70 kV the HVL will read 1.9 mm Al instead of earlier 1.8 mm Al.

Product versions

The new algorithms are implemented for:
Ocean 2014 version 2015.01 and higher
QABrowser for Black Piranha version 5.1B and higher
QABrowser for Red Piranha version 4.4C and higher

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