

Product Note

RTI Dose Probe vs. Piranha Dose Probe

RTI Dose Probe – A new lead free replacer to Piranha Dose Probe has been developed. RTI Dose Probe has almost identical characteristics as the Piranha Dose Probe. Only small variations in energy dependencies have been observed.

Radiography and Fluoroscapy

The energy corrections now cover a wider range of kV and TF. In addition to that they have been slightly altered in order to improve dose measurements. This means that small differences in measured dose can be noticed when comparing the RTI Dose Probe to the Piranha Dose Probe, see table 1.

kV\TF	3	13	23	43
40	2,84% ¹	0,96% ¹		
50	1,22%	3,87%	9,05% ²	4,24% ¹
70	0,00%	0,94%	3,32%	4,22% ¹
100	-0,90%	-1,99%	2,09%	2,29% ¹
120	-1,07%	-2,87%	0,82%	1,32% ¹
150	-1,40%	-0,03%	1,97%	6,88% ¹

Table 1: Differences in measured dose after applying proper corrections in Ocean 2014. The table shows how much the Piranha Dose Probe differs from the RTI Dose Probe. At the reference calibration point 70 kV, 3 mm Al, the deviation is 0%.

¹ Dose values from the Piranha Dose Probe is not compensated for kV and TF due to that the Piranha Dose Probe has no correction data for those higher filtrations.

² The relatively high deviation at 23 mm Al and 50 kV has been observed for a range of Piranha Dose Probes delivered from 2011 to 2014. This is a gradually increasing deviation that is seen at low kV and high filtrations. For older Piranha Dose Probes the deviation in these points are less than 3%.

Mammography

With the implementation of the RTI Dose Probe, some new radiation qualities have become available. In addition to M1 (Mo / 30µm Mo) the following qualities are available.

M3 (Mo / 25 µm Rh)	M1d (Mo / 30 µm Mo + 2 mm Al)	/New/
M4 (Rh / 25 µm Rh)	M1e (Mo / 30 µm Mo + 3 mm Al & PMMA (IQST))	/New/
M6 (W / 50 µm Rh)	M3a (Mo / 25 µm Rh + 40 mm PMMA)	
M7 (W / 0.5 mm Al)	M3e (Mo / 25 µm Rh + 3 mm Al & PMMA (IQST))	/New/
M10 (W / 50 µm Ag)	M4e (Rh / 25 µm Rh + 3 mm Al & PMMA (IQST))	/New/
M11 (W / 75 µm Ag)	M6a (W / 50 µm Rh + 40 mm PMMA)	
M12 (W / 50 µm Rh (Giotto))	M7d (W / 0.5 mm Al + 2 mm Al)	/New/
M13 (Mo / 300 µm Cu/300 µm)		
M14 (Rh / 300 µm Cu/300 µm)		
M15 (W / 0.7 mm Al)		/New/
M16 (W / 50 µm Ag (Selenia))		/New/
M17 (W / 50 µm Rh (Selenia))		/New/

Note that the calibrations marked /New/ are available only for the RTI Dose Probe. The other are available for the Piranha Dose Probe too.

Product Note

The energy corrections have been expanded to cover a larger kV range. The dose values acquired with the RTI Dose Probe is very similar to those from the Piranha Dose Probe. Test measurements for M1, which all other qualities emanate from, are shown in table 2.

kV\Radiation quality	M1
20	10,78% ¹
25	0,07%
28	0,00%
35	-0,13%
40	-0,27%
45	-0,19%
49	-1,77%

Table 2: Differences in measured dose when comparing the RTI Dose Probe to the Piranha Dose Probe. Normalised at 28 kV (reference calibration point).

¹ Dose values from the Piranha Dose Probe is not compensated for kV and TF due to the limited range of compensation data for the Piranha Dose Probe.

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