

Product Note

New s-factors for AGD (MGD) in Ocean 2014

Background

For calculations of Average (or Mean) Glandular Dose, the Ocean software uses data published by ACR, IAEA, and EUREF. For new upcoming radiation qualities, data for calculations have not been available. Also more recent scientific work have been pointing out that there are a need of looking over the factors used for calculations.

With the Ocean 2014 release, 2013.11, new s-factors have been implemented based on the scientific paper, "Further factors for the estimation of mean glandular dose using the United Kingdom, European and IAEA breast dosimetry protocols", 2009, [Dance DR](#), [Young KC](#), [van Engen RE](#), and EUREF, "Supplement to the European Guidelines, fourth edition, Version 1.0, August 2011".

The new factors complements the calculations based on IAEA, *Technical Reports Series no 457, Dosimetry in Diagnostic Radiology: An International code of Practice, page 155-163, 2007, ISSN 0074-1914; no. 457.*

Change after implementation

The table below shows the new s-factors. Old factors and the difference is also shown in the table.

Target/filter combination	s-factor in Ocean 2014	s-factor in earlier Ocean versions	Change in AGD value
W/Ag (50 – 75 µm)	1,042	-	-
W/0,5 mm Al	1,149*	1,05	+9,4%
W/0,7 mm Al	1.094*	-	-

* The s-factors for W targets are valid for PMMA thickness of 45 mm (equivalent breast thickness 53 mm). See table below.

PMMA thickness (mm)	Equiv breast thickness (mm)	s-factor (W/0,5 mm Al)	s-factor (W/0,7 mm Al)
20	21	1.075	1.052
30	32	1.104	1.064
40	45	1.134	1.082
45	53	1.149	1.094
50	60	1.160	1.105
60	75	1.181	1.123
70	90	1.198	1.136
80	103	1.208	1.142

Data in table above are taken from , "Further factors for the estimation of mean glandular dose using the United Kingdom, European and IAEA breast dosimetry protocols", 2009, [Dance DR](#), [Young KC](#), [van Engen RE](#), and EUREF, *Supplement to the European Guidelines, fourth edition, Version 1.0, August 2011*

Product versions

The new s-factors are implemented for:
Ocean 2014 version 2013.12 and higher

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