

# GE Healthcare

## LUNAR

24-October-2013

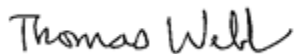
To: Customer / Whom It May Concern:

Subject: Entrance Dose & Effective Dose estimates on the Lunar iDXA Densitometry System

Effective Dose in the table shown on the following page was estimated based on entrance dose measurements performed on several Lunar iDXA scanners using a Victoreen 400cc ion chamber and a Victoreen 530 electrometer. Effective Dose is a measure that estimates an equivalent amount of radiation delivered to the entire body, weighted according to how much of the body is exposed and which tissues and organs are included. Effective dose in this case was estimated using standard weighting tables<sup>1,2</sup> to account for the tissues and organs within the typical scan field for the exams listed. Effective Doses are expressed in microSieverts (uSv).

Note that these are estimates using weighting factors and empirical measurements and, therefore, are not individual "patient" doses nor are they necessarily identical to what may be calculated by a medical physicist at your facility due to possible measurement or weighting factor/methodology variations.

Very Best Regards,



Thomas Webb  
Global Product Marketing Manager  
Bone & Body Composition  
GE Healthcare- Lunar



## Entrance Dose & Effective Dose estimates on the Lunar iDXA Densitometry System

Scan Type	Mode	Entrance Dose (mrad)	Entrance Dose ( $\mu$ Gy)	Effective Dose ( $\mu$ Sv) *
AP Spine	Thick	32.9	329	6.77
	Standard	14.6	146	3.37
	Thin	3.7	37	0.90
	Quick View	4.7	47	1.08
Femur	Thick	32.9	329	6.15
	Standard	14.6	146	3.09
	Thin	3.7	37	0.80
	Quick View	4.7	47	0.99
Dual Femur	Thick	32.9	329	12.31
	Standard	14.6	146	6.13
	Thin	3.7	37	1.61
	Quick View	4.7	47	1.97
Total Body	Thick	0.6	6	1.92
	Standard	0.3	3	0.96
	Thin	0.3	3	0.96
	Thin (Child 10 yo)	0.3	3	1.11
	Thin (Child 5 yo)	0.3	3	1.20
	Thin (Child 1 yo)	0.3	3	1.32
	Infant (Child 1 yo)	1.1	11	4.84
	Infant (0-1 yo)	1.1	11	5.83
LVA	Standard	32.9	329	12.09
Spine Geometry - LVA	Standard	32.9	329	16.99
Spine Geometry - APVA	Thick	14.6	146	10.64
	Standard	14.6	146	10.64
	Thin	3.7	37	2.84
Lateral Spine	Standard	32.9	329	2.90
APVA	Thick	14.6	146	7.57
	Standard	14.6	146	7.57
	Thin	3.7	37	2.02
Orthopedic Femur	Thick	32.9	329	7.11
	Standard	14.6	146	3.57
	Thin	3.7	37	0.92
Forearm	Standard	1	10	0.06
Hand	Standard	1	10	0.20
Knee	Thin	3.4	34	0.74

\*Effective dose in this column assumes SmartScan is turned off. Sizes of measurement areas, irradiation times, and effective dose will be less than those listed above if you use the SmartScan feature.



# GE Healthcare

## LUNAR

<sup>1</sup> W. Huda and K. Bissessur, Effective dose equivalents,  $H_E$ , in diagnostic radiology, Am. Assoc. Phys. Med, 17 (6), Nov/Dec 1990

<sup>2</sup> W. Huda and RL Morin, Patient doses in bone mineral density, The British Journal of Radiology, May 1996.

