

CT-Expo v2.5

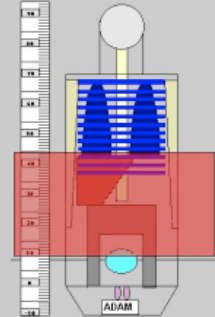
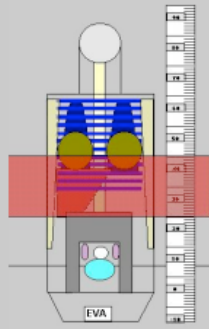
Calculation

- Calculate
- Standard
- 'Light'

- Benchmarking
- Help
- Close

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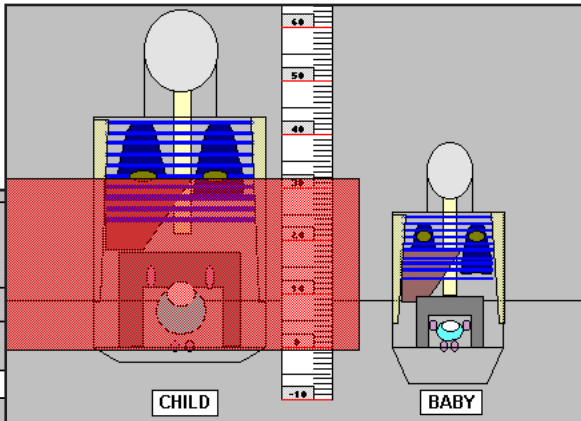
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All scanners

3. Scanner Model
 Manufacturer: Siemens
 Scanner: Somatom Plus 4 Series

4. Scan Parameters
 Somatom 2
 Somatom DR1/2/3
 Somatom CR
 Somatom DRH
 Somatom DRG
 Somatom HQ
 Somatom AR Series
 Somatom Plus/Classic
Somatom Plus Series
 Somatom Plus 4 V2
 Somatom Access
 Espirit, Balance, Emobion
 Balance, Emobion (from '00)



All age groups

Benchmarking MSCT

Scanner Model: Philips Brilliance 40/64

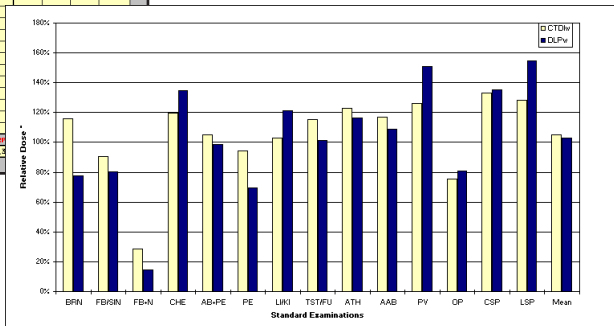
Standard Examination	Name	Abdr.	U	I	kV	mA	t	Q _{eff}	N	P _{max}	TF	P _{max}	L	S _{ref}	Spiral	Dose Values				Relative Values %			
																CTDI _{vol}	CTDI _{vol}	DLP _{vol}	E	CTDI _{vol}	CTDI _{vol}	DLP _{vol}	E
Brain	BRN	120	400	1	120	64	0,6	40,0	5,0	1,0	13,0	1,0	49,5	49,5	839	2,3	87,8	88,6	85,6	84,8			
Facial Bone / Sinuses	FB/SIN																						
Facial B + Neck (Head)	FB+MCR																						
Facial B + Neck (Body)	FB+MCR																						
Restline Chest	CHE																						
Restline Abdomen (Int.)	ABD+PE																						
Restline Pelvis	PEL																						
Liver / Kidneys	LI/KI																						
Whole Trunk	TRUNK																						
CTA Thoracic Aorta	ATH																						
CTA Abdominal Aorta	AAB																						
Pulmonary Vasculis	PF																						
Ossesous Pelvis	OP																						
Cervical Spine (Head)	CSP(H)																						
Cervical Spine (Body)	CSP(B)																						
Lumbar Spine	LSP																						
Average (unweighted)																							

Results per Scan Series

Scan Series	Dose Values per Scan or per Series*			
	CTDI _{vol} [mSv]	CTDI _{vol} [mSv]	DLP _{vol} [mSv*cm]	Effective Dose E* [mSv]
1st Series	8,6	8,6	172	2,5
2nd Series	8,6	8,6	943	6,3
3rd Series	11,4	11,4	457	6,7

CTDI and DLP values refer to 32cm body phantom. Effective dose E refers to ICRP 103

Dose assessment



Benchmarking

* All relative and reference values refer to the corresponding average values of the German register-based CT survey, conducted in 1999 by DRG and DKG

CT-Expo

Description:

CT-Expo is an MS Excel application written in Visual Basic to calculate patient dose values resulting from CT examinations. CT-Expo is based on computational methods which were used to evaluate the data collected in the German surveys on CT practice. A comprehensive description of the underlying methods is given in the book 'Radiation Exposure in Computed Tomography' *.

CT-Expo allows the calculation of the following dose quantities:

- Weighted CTDI
- Volume CTDI
- Size-Specific Dose Estimate (SSDE) **NEW**
- Dose-length product
- Organ doses
- Effective dose(ICRP 60 and ICRP 103)

Special features:

In contrast to similar programs for CT dose assessment, CT-Expo offers a variety of unique features:

- Dose calculation for all age groups (adults, children, infants)
- Separate calculation for each gender
- Applicable for all existing scanner models
- Correction of scanner-specific influences
- Takes into account overbeaming effects of single and multi-slice scanners
- Takes into account overranging effects in spiral scanning mode
- Takes into account dose modulation effects (longitudinal and 3D)
- Standardized and free dose assessment
- Assessment of the dose contribution resulting from the scan projection radiographs
- Simplified dose assessment from $CTDI_{vol}$ and DLP data
- Comparison with results from German survey on CT practice in 1999
- Comprehensive benchmarking section including guidance on dose optimization
- Regular updates of scanner data base

References:

- A comprehensive description of the software and its applications has been published (in German) in *RoeFo* 12/2002 (p. 1570 - 76).
- A validation of the computational methods has been published in *Eur Radiol* 07/2004 (p. 1275 - 84).

System requirements:

- PC: Pentium, at least Windows 95, Excel 97
- Mac: PPC, at least OS 7.5, Excel 98

Content:

- CD with CT-Expo application
- PDF manual
- Registration form

Rates:

- Single copy: 50 Euro plus delivery fee
- Five copies: 175 Euro plus delivery fee
- Updates: 10 Euro (five copies: 35 Euro)
- Future upgrades with extended functionality at reduced rates for registered users

Available: Since autumn 2001

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A demo version with reduced scanner spectrum, but full functionality is available on request; distribution only per e-mail or download from:

<http://www.sascrad.com/information/downloads/>

* Nagel HD (ed.), Galanski M, Hidajat N, Maier W, Schmidt Th. *Radiation Exposure in Computed Tomography*, 4th edition. Hamburg: CTB Publications, 2002 (Price: 25.00 Euro plus delivery fee, contact: drhdnagel@sascrad.com)