

TABELLER

RADIOFYSIK

DEL II

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Göteborgs universitet
Avdelningen för radiofysik

TABLE 18—Population parameters and corresponding estimators

Population parameters	Corresponding estimators of parameters
μ_x (mean or first moment)	$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$
σ_x^2 (variance or second central moment)	$s_x^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$
$\sigma_{xy} = \sigma_{yx}$ (covariance)	$s_{xy} = s_{yx} = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$
σ_{xy} (correlation coefficient)	$r_{xy} = r_{yx} = \frac{s_{xy}}{s_x s_y}$
σ_x (standard deviation of x about μ_x)	s_x
$\sigma_{\bar{x}} = \frac{\sigma_x}{\sqrt{n}}$ (standard deviation of the average $\bar{x}$, or standard error)	$s_{\bar{x}} = \frac{s_x}{\sqrt{n}}$
$100 \frac{\sigma}{\mu}$ (coefficient of variation or relative standard deviation, expressed in per cent)	$v_x = 100 \frac{s_x}{\bar{x}}$

TABLE 20— t factors for confidence interval and K factors for tolerance interval^a

Degrees of freedom	Confidence interval, t Factor ^b $1 - \alpha$		Tolerance interval, K Factor ^b			
	0.95	0.99	$\gamma = 0.95$		$\gamma = 0.99$	
			$p = 0.95$	$p = 0.99$	$p = 0.95$	$p = 0.99$
1	12.706	63.657	37.674	48.430	188.491	242.300
2	4.303	9.925	9.916	12.861	22.401	29.055
3	3.182	5.841	6.370	8.299	11.150	14.527
4	2.776	4.604	5.079	6.634	7.855	10.260
5	2.571	4.032	4.414	5.775	6.345	8.301
6	2.447	3.707	4.007	5.248	5.488	7.187
7	2.365	3.499	3.732	4.891	4.936	6.468
8	2.306	3.355	3.532	4.631	4.550	5.966
9	2.262	3.250	3.379	4.433	4.265	5.594
10	2.228	3.169	3.259	4.277	4.045	5.308
15	2.131	2.947	2.903	3.812	3.421	4.492
20	2.086	2.845	2.723	3.577	3.121	4.100
25	2.060	2.787	2.612	3.432	2.941	3.865
30	2.042	2.750	2.536	3.332	2.820	3.706
60	2.000	2.660	2.329	3.061	2.500	3.285
∞	1.960	2.576	1.960	2.576	1.960	2.576

^a Adapted from Tables A-4 and A-6, Natrella (1963).^b The t and K factors are for "two-sided" limits based on a normal distribution. The term "two-sided" means that both over and under limits from the average are of interest. Some tables give "one-sided" factors, in which case the use of $\gamma/2$ instead of α yields the same result. (Such t -factor tables are sometimes called "Percentiles of the t distribution.")

$$\text{var } \hat{W} = \left[\frac{\partial F}{\partial X} \right]^2 \frac{\sigma_x^2}{n} + \left[\frac{\partial F}{\partial Y} \right]^2 \frac{\sigma_y^2}{n} + 2 \left[\frac{\partial F}{\partial X} \right] \left[\frac{\partial F}{\partial Y} \right] \frac{\sigma_{xy}}{n}$$

TABLE 21—Propagation of error formulae for some simple functions*

Function form of $\hat{w}$ ^a	Approx. formula for var ($\hat{w}$) (x and y are assumed to be statistically independent)	Term to be added if x and y are correlated, and a reliable estimate of σ_{xy} can be assumed
$A\hat{x} + B\hat{y}$	$A^2 s_x^2 + B^2 s_y^2$	$2ABs_{xy}$
$\left(\frac{\hat{x}}{\sigma_x^2} + \frac{\hat{y}}{\sigma_y^2} \right) / \left(\frac{1}{\sigma_x^2} + \frac{1}{\sigma_y^2} \right)$	$1 / \left(\frac{1}{\sigma_x^2} + \frac{1}{\sigma_y^2} \right)$	
$\frac{\hat{x}}{\hat{y}}$	$\left(\frac{\hat{x}}{\hat{y}} \right)^2 \left(\frac{s_x^2}{\hat{x}^2} + \frac{s_y^2}{\hat{y}^2} \right)$	$\left(\frac{\hat{x}}{\hat{y}} \right)^2 \left(-2 \frac{s_{xy}}{\hat{x}\hat{y}} \right)$
$\frac{1}{\hat{y}}$	$\frac{s_y^2}{\hat{y}^4}$	
$\frac{\hat{x}}{\hat{x} + \hat{y}}$	$\left(\frac{\hat{w}}{\hat{x}} \right)^4 (\hat{y}^2 s_x^2 + \hat{x}^2 s_y^2)$	$\left(\frac{\hat{w}}{\hat{x}} \right)^4 (-2\hat{x}\hat{y}s_{xy})$
$\frac{\hat{x}}{1 + \hat{x}}$	$\frac{s_x^2}{(1 + \hat{x})^4}$	
$\hat{x}\hat{y}$	$(\hat{x}\hat{y})^2 \left(\frac{s_x^2}{\hat{x}^2} + \frac{s_y^2}{\hat{y}^2} \right)$	$(\hat{x}\hat{y})^2 \left(2 \frac{s_{xy}}{\hat{x}\hat{y}} \right)$
$\hat{x}^2$	$4\hat{x}^2 s_x^2$	
$\sqrt{\hat{x}}$	$\frac{1}{4} \frac{s_x^2}{\hat{x}}$	
$\ln \hat{x}$	$\frac{s_x^2}{\hat{x}^2}$	
$k\hat{x}^a \hat{y}^b$	$\hat{w}^2 \left(a^2 \frac{s_x^2}{\hat{x}^2} + b^2 \frac{s_y^2}{\hat{y}^2} \right)$	$(\hat{w})^2 \left(2ab \frac{s_{xy}}{\hat{x}\hat{y}} \right)$
$e^{i\hat{x}}$	$e^{2i\hat{x}} s_x^2$	
$\sin \left(\frac{\hat{x} + \hat{y}}{2} \right)$	$\frac{1}{4} \left\{ \frac{\cos^2 \left(\frac{\hat{x} + \hat{y}}{2} \right)}{\sin^2 \frac{\hat{x}}{2}} s_y^2 + \frac{\sin^2 \frac{\hat{y}}{2}}{\sin^4 \frac{\hat{x}}{2}} s_x^2 \right\}$	$-\frac{\sin \frac{\hat{y}}{2} \cos \left(\frac{\hat{x} + \hat{y}}{2} \right)}{2 \sin^3 \frac{\hat{x}}{2}} s_{xy}$
$\frac{\hat{x}}{\sin \frac{\hat{x}}{2}}$		
$100 \frac{s_x}{\hat{x}}$	(= coefficient of variation in percent)	$\frac{\hat{w}^2}{2(n-1)}$ (not directly derived from the formulae) ^c

* From Ku (1966).

^b It is assumed that the value of $\hat{w}$ is finite and real, e.g., $\hat{y} \neq 0$ for ratios with $\hat{y}$ as denominator, $\hat{x} > 0$ for $\sqrt{\hat{x}}$ and $\ln \hat{x}$.

^c Weighted mean as a special case of $A\hat{x} + B\hat{y}$, with σ_x and σ_y considered known.

^d Distribution of $\hat{w}$ is highly skewed and normal approximation could be seriously in error for small n .

^e See, for example, *Statistical Theory with Engineering Applications*, p. 301, by A. Hald (John Wiley & Sons, New York, N.Y., 1952).

Formelsamling Fourieranalys

Allmänna egenskaper

Beskrivning	$f(t)$	$F(\nu)$
Definition	$f(t) = \int_{-\infty}^{\infty} F(\nu) e^{i2\pi\nu t} d\nu$	$F(\nu) = \int_{-\infty}^{\infty} f(t) e^{-i2\pi\nu t} dt$
	$f(t) = \left[\int_{-\infty}^{\infty} F^*(\nu) e^{-i2\pi\nu t} d\nu \right]^*$	$F(\nu)$
Symmetri	$F(t)$	$f(-\nu)$
Komplexkonjugat	$f^*(t)$	$F^*(-\nu)$
Linjäritet	$a f(t) + b g(t)$	$a F(\nu) + b G(\nu)$
Tidsskalning	$f(kt)$	$\frac{1}{ k } F\left(\frac{\nu}{k}\right)$
Frekvensskalning	$\frac{1}{ k } f\left(\frac{t}{k}\right)$	$F(k\nu)$
Tidstranslation	$f(t - t_0)$	$F(\nu) e^{-i2\pi\nu t_0}$
Frekvenstranslation	$f(t) e^{i2\pi t \nu_0}$	$F(\nu - \nu_0)$
Faltning (konvulering)	$\int_{-\infty}^{\infty} x(\tau) f(t - \tau) d\tau = x(t) * f(t)$	$X(\nu) F(\nu)$
	$x(t) f(t)$	$X(\nu) * F(\nu)$
$f(t)$ reell	$f(t) = f^*(t)$	$F(\nu) = F^*(-\nu)$
$f(t)$ reell och jämn	$f(t) = f^*(t), f(t) = f(-t)$	$F(\nu) = F^*(\nu), F(\nu) = F(-\nu)$
$f(t)$ reell och udda	$f(t) = f^*(t), f(t) = -f(-t)$	$F(\nu) = -F^*(\nu), F(\nu) = -F(-\nu)$

Transformpar

Beskrivning	$f(t)$	$F(\nu)$
Konstant	K	$K\delta(\nu)$
Impulsfunktion	$K\delta(t)$	K
Box	$\begin{aligned} A & t < T_0 \\ \frac{A}{2} & t = T_0 \\ 0 & t > T_0 \end{aligned}$	$2T_0A \frac{\sin(2\pi T_0\nu)}{2\pi T_0\nu} = 2T_0A \operatorname{sinc}(2\pi T_0\nu)$
Impulståg	$\sum_{n=-\infty}^{\infty} \delta(t - nT)$	$\frac{1}{T} \sum_{n=-\infty}^{\infty} \delta\left(\nu - \frac{n}{T}\right)$
Gaussfunktion	$e^{-\pi\left(\frac{t}{T}\right)^2}$	$T e^{-\pi(\nu T)^2}$
Triangulärfunktion	$\begin{aligned} 2T_0A^2 \left(1 - \frac{ t }{2T_0}\right) & t \leq 2T_0 \\ 0 & t > 2T_0 \end{aligned}$	$\left(2T_0A \frac{\sin(2\pi T_0\nu)}{2\pi T_0\nu}\right)^2$
Exponentialfunktion	$\begin{aligned} e^{-\frac{t}{T}} & t \geq 0 \\ 0 & t < 0 \end{aligned}$ $e^{-\frac{ t }{T}}$	$\frac{T}{1 + i2\pi\nu T}$ $\frac{2T}{1 + (2\pi\nu T)^2}$

Tabell 29

Operatorregler

Laplace-transformationen

$$F(s) = \int_0^{\infty} e^{-st} f(t) dt$$

skrives

$$F(s) \subset f(t) \text{ eller } f(t) \supset F(s)$$

$F(s)$ = operator; $f(t)$ = tidfunktion (= 0 för $t < 0$)

$$1. \quad c_1 F_1(s) \pm c_2 F_2(s) \pm c_3 F_3(s) \pm \dots \subset c_1 f_1(t) \pm c_2 f_2(t) \pm c_3 f_3(t) \pm \dots$$

$$2. \quad \frac{\partial}{\partial \alpha} F(s, \alpha) \subset \frac{\partial}{\partial \alpha} f(t, \alpha)$$

$$3. \quad f^{(n)}(t) \supset s^n F(s) - (s^{n-1} f(0) + s^{n-2} f'(0) + \dots + f^{(n-1)}(0))$$

särskilt $f'(t) \supset sF(s) - f(0)$ och, om $f(0) = 0$, $f'(t) \supset sF(s)$.

$$4. \quad \int_0^t f(\tau) d\tau \supset \frac{F(s)}{s}$$

$$5. \quad F^{(n)}(s) \subset (-t)^n f(t)$$

$$6. \quad F\left(\frac{s}{\lambda}\right) \subset \lambda f(\lambda t) ; \quad \lambda \text{ reell och } > 0$$

Likformighetssatsen

$$7. \quad e^{-at} f(t) \supset F(s+a)$$

Dämpningssatsen

$$8. \quad e^{-as} F(s) \subset \begin{cases} f(t-a) & \text{för } t > a \\ 0 & \text{för } t < a \end{cases} ; \quad a \text{ reell och } > 0$$

Fördröjningssatsen

$$9. \quad F_1(s) \cdot F_2(s) \subset \int_0^t f_1(t-\tau) f_2(\tau) d\tau$$

Borels sats (faltungssatsen)

$$10. \quad \lim_{t \rightarrow 0^+} f(t) = \lim_{s \rightarrow \infty} s F(s) ; \quad \lim_{t \rightarrow \infty} f(t) = \lim_{s \rightarrow 0} s F(s)$$

(om gränsvärdet för $f(t)$ existerar)

Gränsvärdessatserna

$$11. \quad \frac{F(s)}{G(s)} \subset \sum_{k=1}^n \frac{F(s_k)}{G'(s_k)} e^{s_k t} ; \quad G(s_k) = 0$$

Expansionsteoremet

$$12. \quad \psi(s) F(\varphi(s)) \subset \int_0^{\infty} [\psi(s) e^{-z\varphi(s)}]_t f(z) dz$$

Transformationssatsen

$$13. \quad f(t) \supset \frac{F_T(s)}{1 - e^{-sT}} ; \quad F_T(s) = \int_0^T f(t) e^{-st} dt =$$

Periodiska förlopp

= operatorm. för
första perioden

Tabell 30

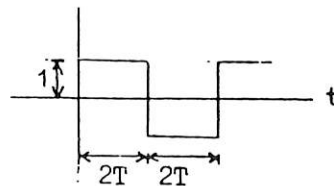
Vanligen förekommande operatorer och tidfunktioner

	Operator $F(s)$	Tidfunktion $f(t)$ för $t > 0$ ($f(t) = 0$ för $t < 0$)
1.	$\frac{1}{s}$	$\sigma(t) = 1$
2.	1	$\delta(t)$
3.	$\frac{1}{s^2}$	t
4.	$\frac{1}{s^{n+1}}$	$\frac{t^n}{n!}$
5.	$\frac{1}{\sqrt{s}}$	$\frac{1}{\sqrt{\pi t}}$
6.	$\frac{1}{s\sqrt{s}}$	$2\sqrt{\frac{t}{\pi}}$
7.	$\frac{1}{s \pm a}$	$e^{\mp at}$
8.	$\frac{1}{s(s+a)}$	$\frac{1}{a} (1 - e^{-at})$
9.	$\frac{1}{s(s-a)}$	$\frac{1}{a} (e^{at} - 1)$
10.	$\frac{\omega}{s^2 + \omega^2}$	$\sin \omega t$
11.	$\frac{s}{s^2 + \omega^2}$	$\cos \omega t$
12.	$\frac{\omega}{s^2 - \omega^2}$	$\sinh \omega t$
13.	$\frac{s}{s^2 - \omega^2}$	$\cosh \omega t$
14.	$\frac{\omega}{(s+\beta)^2 + \omega^2}$	$e^{-\beta t} \sin \omega t$
15.	$\frac{s+\beta}{(s+\beta)^2 + \omega^2}$	$e^{-\beta t} \cos \omega t$
16.	$\frac{1}{(s+a)^2}$	$t e^{-at}$
17.	$\frac{1}{(s+a)^{n+1}}$	$\frac{t^n}{n!} e^{-at}$
18.	$\frac{1}{(s+s_1)(s+s_2)}$	$\frac{e^{-s_1 t} - e^{-s_2 t}}{s_2 - s_1}$

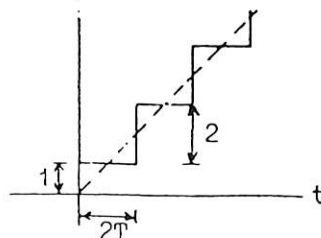
Tabell 30

19.	$\frac{1}{\sqrt{s^2 + a^2}}$	$J_0(at)$
20.	$\frac{1}{\sqrt{s(s+2a)}}$	$e^{-at} J_0(jat)$
21.	$\frac{1}{\sqrt{s^2 + 1}} e^{-a\sqrt{s^2 + 1}}$	$J_0(\sqrt{t^2 - a^2}) \cdot \sigma(t - a)$
22.	$\frac{1}{\sqrt{s^2 + a^2}} \left(\frac{\sqrt{s^2 + a^2} - s}{a} \right)^n$	$J_n(at)$
23.	$\frac{1}{s} e^{-1/s}$	$J_0(2\sqrt{t})$
24.	$\frac{1}{s} \cos \frac{1}{s}$	$\text{ber}(2\sqrt{t})$
25.	$\frac{1}{s} \sin \frac{1}{s}$	$\text{bei}(2\sqrt{t})$
26.	$\frac{1}{s^{n+1}} e^{-1/s}$	$t^{n/2} J_n(2\sqrt{t})$
27.	$e^{-a\sqrt{s}}$	$\frac{a}{2\sqrt{\pi}} \frac{e^{-a^2/4t}}{\sqrt{t}}$
28.	$\frac{1}{s} e^{-a\sqrt{s}}$	$1 - \Phi\left(\frac{a}{2\sqrt{t}}\right)$
29.	$\frac{1}{\sqrt{s}} e^{-a\sqrt{s}}$	$\frac{1}{\sqrt{\pi t}} e^{-a^2/4t}$
30.	$\frac{1}{s\sqrt{s+1}}$	$\Phi(\sqrt{t})$
31.	$\frac{1}{s(\sqrt{s+1})}$	$1 + e^t (\Phi(\sqrt{t}) - 1)$
32.	$\frac{1}{\sqrt{s}(\sqrt{s+1})}$	$e^t (1 - \Phi(\sqrt{t}))$
33.	$\frac{1}{s} \left(\frac{s}{s+a} \right)^{n+1}$	$e^{-at} L_n(at) = \frac{d^n}{dt^n} \left(\frac{t^n}{n!} e^{-at} \right)$
34.	$\frac{1}{\sqrt{s^2 - \rho^2}} \left\{ \frac{\sqrt{s^2 - \rho^2} - s}{\rho} \right\}^n e^{-a\sqrt{s^2 - \rho^2}}$	$\left(\sqrt{\frac{t-a}{t+a}} \right)^n j^n J_n(j\rho\sqrt{t^2 - a^2}) \sigma(t-a)$

35. $\frac{1}{s} \tanh sT$



36. $\frac{1}{s} \coth sT$



Tabell 31 . Laplace Transforms

Definition

$$F(s) = \int_0^{\infty} e^{-st} f(t) dt, \quad s > \alpha \quad \text{where } \alpha \text{ is some constant}$$

Transform

Original function

$$F(s)$$

$$f(t)$$

$$F(s+a)$$

$$e^{-at} f(t)$$

$$e^{-as} F(s)$$

$$\begin{cases} f(t-a); & t-a > 0 \\ 0 & ; t-a < 0 \end{cases}$$

$$\frac{1}{a} F\left(\frac{s}{a}\right)$$

$$f(at)$$

$$F(as) \quad (a > 0)$$

$$\frac{1}{a} f\left(\frac{t}{a}\right)$$

$$\frac{d^n F(s)}{ds^n}$$

$$(-t)^n f(t)$$

$$\int_s^{\infty} F(\sigma) d\sigma$$

$$\frac{f(t)}{t}$$

$$\frac{1}{2\pi i} \int_{c-i\infty}^{c+i\infty} F_1(\sigma) F_2(s-\sigma) d\sigma$$

$$f_1(t) f_2(t)$$

$$F_1(s) F_2(s)$$

$$\int_0^t f_1(\tau) f_2(t-\tau) d\tau = \int_0^t f_1(t-\tau) f_2(\tau) d\tau$$

$$s F(s) - f(0)$$

$$f'(t)$$

$$s^2 F(s) - [s f(0) + f'(0)]$$

$$f''(t)$$

$$s^n F(s) - [s^{n-1} f(0) + \dots + f^{(n-1)}(0)]$$

$$f^{(n)}(t)$$

$$\frac{1}{s} F(s) + \frac{1}{s} \int_0^t f(\tau) d\tau$$

$$\int_0^t f(\tau) d\tau$$

Transform

$$\lim_{s \rightarrow 0} s F(s)$$

$$\lim_{t \rightarrow \infty} f(t)$$

$$\lim_{s \rightarrow \infty} s F(s)$$

$$\lim_{t \rightarrow 0} f(t)$$

Special transforms

$$1$$

$$\delta(t)$$

Dirac function

$$\frac{1}{s}$$

$$1$$

Step function

$$\frac{1}{s^2}$$

$$t$$

$$\frac{1}{s^3}$$

$$\frac{1}{2} t^2$$

$$\frac{1}{s^{n+1}}$$

$$\frac{t^n}{\Gamma(n+1)}$$

$$\frac{1}{s+a}$$

$$e^{-at}$$

$$\frac{1}{(s+a)^2}$$

$$t e^{-at}$$

$$\frac{s}{(s+a)^2}$$

$$(1-at)e^{-at}$$

$$\frac{1}{1+as}$$

$$\frac{1}{a} e^{-\frac{t}{a}}$$

$$\frac{a}{s^2 + a^2}$$

$$\sin at$$

Transform	Original function	Transform	Original function
$\frac{a}{s^2 - a^2}$	$\sinh at$	$\frac{s}{s^2 + 2\zeta\omega s + \omega^2}$	$\frac{1}{\sqrt{1-\zeta^2}} e^{-\zeta\omega t} \sin(\omega\sqrt{1-\zeta^2} t + \tau)$
$\frac{s}{s^2 + a^2}$	$\cos at$	$\zeta < 1$	$\tau = \arctan \frac{\omega\sqrt{1-\zeta^2}}{-\zeta\omega}$
$\frac{s}{s^2 - a^2}$	$\cosh at$	$\zeta = 1$	$(1-\omega t) e^{-\omega t}$
$\frac{1}{s(s+a)}$	$\frac{1}{a}(1 - e^{-at})$	$\zeta > 1$	$\frac{1}{\sqrt{\zeta^2-1}} e^{-\zeta\omega t} \sinh(\omega\sqrt{\zeta^2-1} t + \tau)$
$\frac{1}{s(1+as)}$	$1 - e^{-\frac{t}{a}}$		$\tau = \arctan \frac{\omega\sqrt{\zeta^2-1}}{-\zeta\omega}$
$\frac{1}{(s+a)(s+b)}$	$\frac{e^{-bt} - e^{-at}}{a-b}$	$\zeta = 0$	$\cos \omega t$
$\frac{s}{(s+a)(s+b)}$	$\frac{a e^{-at} - b e^{-bt}}{a-b}$		$\frac{1}{\sqrt{a^2+b^2}} [\sin(at-\phi) + \sin \phi e^{-bt}]$
$\frac{a}{(s+b)^2 + a^2}$	$e^{-bt} \sin at$		$\phi = \arctan \frac{a}{b}$
$\frac{s+b}{(s+b)^2 + a^2}$	$e^{-bt} \cos at$		$\frac{1}{\sqrt{a^2+b^2}} [\cos(at-\phi) - \cos \phi e^{-bt}]$
$\frac{1}{s^2 + 2\zeta\omega s + \omega^2}$	$\frac{1}{\omega} \sin \omega t$		$\phi = \arctan \frac{a}{b}$
$\zeta = 0$	$\frac{1}{\omega\sqrt{1-\zeta^2}} e^{-\zeta\omega t} \sin(\omega\sqrt{1-\zeta^2} t)$		$\frac{1}{ab} + \frac{ae^{-bt} - be^{-at}}{ab(b-a)}$
$\zeta < 1$	$t e^{-\omega t}$		$\frac{(b-c)e^{-at} + (c-a)e^{-bt} + (a-b)e^{-ct}}{(b-a)(c-a)(b-c)}$
$\zeta = 1$			
$\zeta > 1$			

Tabell 31 Laplace Transforms

Transform	Original function
$\frac{1}{(s+a)^3}$	$\frac{1}{2} t^2 e^{-at}$
$\frac{s}{(s+a)(s+b)(s+c)}$	$\frac{a(b-c)e^{-at} + b(c-a)e^{-bt} + c(a-b)e^{-ct}}{(b-a)(b-c)(a-c)}$
$\frac{as}{(s^2 + a^2)^2}$	$\frac{t}{2} \sin at$
$\frac{1}{\sqrt{s}}$	$\frac{1}{\sqrt{\pi t}}$
$\frac{1}{\sqrt{s}} F(\sqrt{s})$	$\frac{1}{\sqrt{\pi t}} \int_0^\infty e^{-\sigma^2/4t} f(\sigma) d\sigma$

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
CARBON-11 HALF-LIFE 0.338 HOURS

TARGET ORGANS	SOURCE ORGANS										
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT				KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)	
			STOMACH		ULI						LLI
			CONTENTS	CONTENTS	CONTENTS	CONTENTS					
	6.3E-02	1.7E-06	1.6E-05	9.2E-06	7.5E-06	3.7E-06	9.3E-05	3.6E-05	1.8E-05	1.1E-05	
ADRENALS	8.2E-07	2.7E-03	3.4E-06	2.5E-05	1.4E-05	4.2E-05	2.9E-06	2.6E-06	5.6E-07	1.3E-05	
BLADDER WALL	1.0E-05	4.4E-06	4.5E-06	5.9E-06	5.4E-06	7.8E-06	7.4E-06	5.5E-06	7.5E-06	8.3E-06	
BONE (TOTAL)	2.2E-05	2.4E-06	2.1E-03	2.5E-05	2.7E-05	1.3E-05	2.5E-05	1.4E-05	1.4E-05	1.1E-05	
GI (STOM WALL)	7.2E-06	1.9E-05	2.0E-05	1.3E-03	1.2E-04	6.7E-05	2.0E-05	1.2E-05	2.1E-06	1.2E-05	
GI (SI)											
GI (ULI WALL)	7.8E-06	1.8E-05	2.5E-05	1.7E-04	2.2E-03	3.1E-05	2.1E-05	1.9E-05	2.9E-06	1.2E-05	
GI (LLI WALL)	2.7E-06	5.3E-05	9.5E-06	5.0E-05	2.2E-05	3.5E-03	6.6E-06	2.4E-06	5.9E-07	1.3E-05	
KIDNEYS	8.6E-05	2.9E-06	2.5E-05	2.4E-05	2.0E-05	6.2E-06	3.3E-03	2.8E-05	7.8E-06	1.1E-05	
LIVER	3.7E-05	2.1E-06	1.5E-05	1.3E-05	1.8E-05	2.6E-06	3.0E-05	6.6E-04	1.8E-05	8.4E-06	
LUNGS	1.7E-05	3.7E-07	1.4E-05	2.5E-06	2.6E-06	7.7E-07	7.1E-06	1.8E-05	9.5E-04	1.0E-05	
MARROW (RED)	1.8E-05	9.4E-06	7.8E-06	1.9E-05	1.6E-05	2.3E-05	1.9E-05	8.1E-06	9.4E-06	1.0E-05	
OTH TISS (MUSC)	1.1E-05	1.3E-05	1.1E-05	1.2E-05	1.1E-05	1.3E-05	1.1E-05	8.4E-06	1.0E-05	4.1E-05	
OVARIES	4.1E-06	4.7E-05	3.9E-06	6.5E-05	9.4E-05	1.2E-04	8.7E-06	1.5E-06	1.1E-06	1.5E-05	
PANCREAS	6.3E-05	1.9E-06	1.3E-04	1.6E-05	1.3E-05	5.6E-06	4.9E-05	3.6E-05	2.1E-05	1.3E-05	
SKIN	5.1E-06	4.9E-06	4.4E-06	4.0E-06	4.2E-06	4.4E-06	5.0E-06	4.5E-06	5.1E-06	6.8E-06	
SPLEEN	4.8E-05	1.7E-06	7.1E-05	1.2E-05	9.2E-06	7.1E-06	6.2E-05	7.5E-06	1.6E-05	1.1E-05	
TESTES	5.3E-07	3.8E-05	2.0E-07	2.7E-06	3.9E-06	1.5E-05	1.1E-06	8.7E-07	1.8E-07	9.3E-06	
THYROID	1.5E-06	7.2E-08	1.1E-06	3.0E-07	3.2E-07	1.4E-07	7.1E-07	1.4E-06	9.1E-06	1.0E-05	
UTERUS (NONGRVD)	2.8E-06	1.1E-04	6.7E-06	6.5E-05	3.3E-05	4.1E-05	6.2E-06	3.3E-06	7.2E-07	1.4E-05	
TOTAL BODY	2.5E-05	1.5E-05	1.7E-05	2.4E-05	2.0E-05	2.1E-05	2.5E-05	2.5E-05	2.3E-05	2.3E-05	

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11C

(CONTINUED)

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
CARBON-11 HALF-LIFE 0.338 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY	
	OVARIES	PANCREAS	SKELETON					SKIN	SPLEEN	TESTES		THYROID
			BONE									
			R	MARROW	CORT	BONE	TRA					
ADRENALS	4.6E-06	6.3E-05	1.3E-05	1.3E-05	1.3E-05	4.9E-06	4.5E-05	5.3E-07	1.5E-06	2.9E-05	2.9E-05	
BLADDER WALL	5.0E-05	1.5E-06	5.1E-06	4.9E-06	4.9E-06	4.7E-06	1.0E-06	3.8E-05	7.3E-08	2.6E-05	2.6E-05	
	6.9E-06	6.9E-06	6.1E-05	1.9E-04	1.3E-04	6.4E-06	5.7E-06	5.0E-06	5.7E-06	2.3E-05	2.3E-05	
BONE (TOTAL)	6.9E-06	6.9E-06	6.1E-05	1.9E-04	1.3E-04	6.4E-06	5.7E-06	5.0E-06	5.7E-06	2.3E-05	2.3E-05	
GI (STOM WALL)	6.3E-06	1.3E-04	7.4E-06	4.4E-06	4.4E-06	4.9E-06	7.3E-05	8.8E-07	9.7E-07	2.5E-05	2.5E-05	
GI (SI)	8.8E-05	1.3E-05	2.0E-05	6.0E-06	6.0E-06	4.1E-06	1.0E-05	4.0E-06	5.9E-08	2.7E-05	2.7E-05	
GI (ULI WALL)	8.3E-05	1.6E-05	1.5E-05	5.2E-06	5.2E-06	4.4E-06	1.0E-05	2.4E-06	8.4E-08	2.7E-05	2.7E-05	
GI (LLI WALL)	1.1E-04	4.0E-06	2.3E-05	7.1E-06	7.1E-06	4.5E-06	5.2E-06	2.1E-05	1.1E-07	2.7E-05	2.7E-05	
KIDNEYS	8.5E-06	4.6E-05	1.8E-05	6.8E-06	6.8E-06	5.6E-06	6.3E-05	7.7E-07	3.8E-07	2.5E-05	2.5E-05	
LIVER	4.6E-06	3.1E-05	7.6E-06	5.3E-06	5.3E-06	5.1E-06	8.0E-06	3.9E-07	1.2E-06	2.5E-05	2.5E-05	
LUNGS	8.5E-07	1.8E-05	9.0E-06	7.3E-06	7.3E-06	5.1E-06	1.6E-05	1.1E-07	8.0E-06	2.4E-05	2.4E-05	
MARROW (RED)	2.3E-05	1.3E-05	4.5E-04	2.9E-05	2.4E-04	5.9E-06	8.5E-06	3.9E-06	6.3E-06	2.4E-05	2.4E-05	
	1.5E-05	1.3E-05	9.8E-06	8.3E-06	8.3E-06	6.8E-06	1.1E-05	9.3E-06	1.0E-05	2.3E-05	2.3E-05	
OTH TISS (MUSC)	8.2E-02	2.9E-06	2.7E-05	8.1E-06	8.1E-06	2.3E-06	7.9E-06	0.0	1.4E-07	2.5E-05	2.5E-05	
OVARIES	4.2E-06	1.0E-02	1.3E-05	6.8E-06	6.8E-06	4.4E-06	1.5E-04	2.9E-07	5.1E-07	2.5E-05	2.5E-05	
PANCREAS	3.9E-06	3.8E-06	5.6E-06	6.5E-06	6.5E-06	3.4E-04	4.7E-06	1.2E-05	6.5E-06	1.9E-05	1.9E-05	
SKIN												
SPLEEN	5.2E-06	1.4E-04	6.0E-06	6.3E-06	6.3E-06	5.0E-06	5.6E-03	9.8E-07	9.7E-07	2.5E-05	2.5E-05	
TESTES	0.0	4.8E-07	3.2E-06	4.3E-06	4.3E-06	6.2E-06	7.2E-07	2.7E-02	2.6E-08	2.6E-05	2.6E-05	
THYROID	1.4E-07	1.4E-06	6.8E-06	8.3E-06	8.3E-06	6.3E-06	1.1E-06	2.6E-08	4.6E-02	2.3E-05	2.3E-05	
UTERUS (NONGRVD)	1.3E-04	4.7E-06	1.4E-05	4.3E-06	4.3E-06	4.3E-06	3.5E-06	0.0	1.3E-07	2.5E-05	2.5E-05	
TOTAL BODY	2.7E-05	2.7E-05	2.4E-05	2.3E-05	2.3E-05	1.9E-05	2.5E-05	2.3E-05	2.2E-05	2.3E-05	2.3E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
NITROGEN-13 HALF-LIFE 0.167 HOURS

TARGET ORGANS	SOURCE ORGANS									
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT				KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS	LLI CONTENTS				
ADRENALS	7.8E-02	1.7E-06	1.6E-05	9.3E-06	7.6E-06	3.7E-06	9.3E-05	3.7E-05	1.8E-05	1.1E-05
BLADDER WALL	8.3E-07	3.2E-03	3.4E-06	2.5E-05	1.4E-05	4.2E-05	2.9E-06	2.6E-06	5.6E-07	1.3E-05
BONE (TOTAL)	1.0E-05	4.4E-06	4.5E-06	5.9E-06	5.4E-06	7.8E-06	7.4E-06	5.5E-06	7.5E-06	8.3E-06
GI (STOM WALL)	2.2E-05	2.4E-06	2.5E-03	2.5E-05	2.7E-05	1.4E-05	2.5E-05	1.4E-05	1.4E-05	1.1E-05
GI (SI)	7.2E-06	2.0E-05	2.0E-05	1.5E-03	1.2E-04	6.7E-05	2.1E-05	1.2E-05	2.1E-06	1.2E-05
GI (ULI WALL)	7.9E-06	1.8E-05	2.5E-05	1.7E-04	2.7E-03	3.2E-05	2.2E-05	1.9E-05	2.9E-06	1.2E-05
GI (LLI WALL)	2.7E-06	5.3E-05	9.5E-06	5.0E-05	2.2E-05	4.2E-03	6.6E-06	2.4E-06	5.9E-07	1.3E-05
KIDNEYS	8.6E-05	2.9E-06	2.5E-05	2.4E-05	2.0E-05	6.2E-06	3.9E-03	2.8E-05	7.9E-06	1.1E-05
LIVER	3.7E-05	2.1E-06	1.5E-05	1.3E-05	1.8E-05	2.6E-06	3.0E-05	7.7E-04	1.8E-05	8.4E-06
LUNGS	1.7E-05	3.7E-07	1.4E-05	2.5E-06	2.6E-06	7.7E-07	7.1E-06	1.8E-05	1.1E-03	1.0E-05
MARROW (RED)	1.8E-05	9.4E-06	7.8E-06	1.9E-05	1.6E-05	2.3E-05	1.9E-05	8.1E-06	9.5E-06	1.0E-05
OTH TISS (MUSC)	1.1E-05	1.3E-05	1.1E-05	1.2E-05	1.1E-05	1.3E-05	1.1E-05	8.4E-06	1.0E-05	4.8E-05
OVARIES	4.1E-06	4.7E-05	3.9E-06	6.5E-05	9.5E-05	1.2E-04	8.7E-06	1.5E-06	1.2E-06	1.5E-05
PANCREAS	6.3E-05	1.9E-06	1.3E-04	1.6E-05	1.3E-05	5.6E-06	4.9E-05	3.6E-05	2.1E-05	1.3E-05
SKIN	5.1E-06	4.9E-06	4.4E-06	4.0E-06	4.2E-06	4.4E-06	5.0E-06	4.5E-06	5.1E-06	6.8E-06
SPLEEN	4.8E-05	1.7E-06	7.1E-05	1.2E-05	9.2E-06	7.1E-06	6.2E-05	7.5E-06	1.6E-05	1.1E-05
TESTES	5.3E-07	3.8E-05	2.0E-07	2.7E-06	3.9E-06	1.5E-05	1.1E-06	8.8E-07	1.9E-07	9.3E-06
THYROID	1.5E-06	7.2E-08	1.1E-06	3.0E-07	3.2E-07	1.4E-07	7.2E-07	1.4E-06	9.1E-06	1.0E-05
UTERUS (NONGRVD)	2.8E-06	1.1E-04	6.7E-06	6.5E-05	3.3E-05	4.2E-05	6.2E-06	3.3E-06	7.2E-07	1.4E-05
TOTAL BODY	2.7E-05	1.6E-05	1.8E-05	2.7E-05	2.1E-05	2.3E-05	2.8E-05	2.8E-05	2.6E-05	2.6E-05

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13N

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
 NITROGEN-13 HALF-LIFE 0.167 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY		
	OVARIES	PANCREAS	SKELETON						SKIN	SPLEEN		TESTES	THYROID
			BONE										
			R	MARROW	CORT	BONE	TRA	BONE					
ADRENALS	4.6E-06	6.3E-05	1.3E-05	1.3E-05	1.3E-05	4.9E-06	4.5E-05	5.3E-07	1.5E-06	3.2E-05			
BLADDER WALL	5.0E-05	1.5E-06	5.1E-06	4.9E-06	4.9E-06	4.7E-06	1.0E-06	3.8E-05	7.3E-08	2.8E-05			
BONE (TOTAL)	6.9E-06	6.9E-06	7.3E-05	2.3E-04	1.5E-04	6.4E-06	5.8E-06	5.0E-06	5.7E-06	2.6E-05			
GI (STOM WALL)	6.3E-06	1.3E-04	7.5E-06	4.4E-06	4.4E-06	4.9E-06	7.4E-05	8.8E-07	9.7E-07	2.8E-05			
GI (SI)	8.8E-05	1.3E-05	2.0E-05	6.0E-06	6.0E-06	4.2E-06	1.0E-05	4.0E-06	5.9E-08	3.0E-05			
GI (ULI WALL)	8.3E-05	1.6E-05	1.5E-05	5.2E-06	5.2E-06	4.4E-06	1.0E-05	2.4E-06	8.5E-08	3.0E-05			
GI (LLI WALL)	1.1E-04	4.0E-06	2.3E-05	7.1E-06	7.1E-06	4.5E-06	5.2E-06	2.1E-05	1.1E-07	3.0E-05			
KIDNEYS	8.5E-06	4.6E-05	1.8E-05	6.8E-06	6.8E-06	5.6E-06	6.4E-05	7.7E-07	3.8E-07	2.8E-05			
LIVER	4.6E-06	3.1E-05	7.7E-06	5.3E-06	5.3E-06	5.1E-06	8.0E-06	3.9E-07	1.2E-06	2.8E-05			
LUNGS	8.5E-07	1.8E-05	9.0E-06	7.4E-06	7.4E-06	5.1E-06	1.6E-05	1.1E-07	8.0E-06	2.6E-05			
MARROW (RED)	2.3E-05	1.3E-05	5.4E-04	3.2E-05	3.0E-04	5.9E-06	8.5E-06	3.9E-06	6.3E-06	2.7E-05			
OTH TISS (MUSC)	1.5E-05	1.3E-05	9.8E-06	8.3E-06	8.3E-06	6.8E-06	1.1E-05	9.3E-06	1.0E-05	2.6E-05			
OVARIES	1.0E-01	2.9E-06	2.7E-05	8.1E-06	8.1E-06	2.3E-06	8.0E-06	0.0	1.4E-07	2.7E-05			
PANCREAS	4.2E-06	1.2E-02	1.3E-05	6.8E-06	6.8E-06	4.4E-06	1.5E-04	2.9E-07	5.1E-07	2.8E-05			
SKIN	4.0E-06	3.8E-06	5.6E-06	6.5E-06	6.5E-06	4.2E-04	4.8E-06	1.2E-05	6.5E-06	2.2E-05			
SPLEEN	5.2E-06	1.4E-04	6.0E-06	6.3E-06	6.3E-06	5.0E-06	6.8E-03	9.8E-07	9.7E-07	2.8E-05			
TESTES	0.0	4.8E-07	3.2E-06	4.3E-06	4.3E-06	6.2E-06	7.2E-07	3.2E-02	2.6E-08	2.9E-05			
THYROID	1.4E-07	1.4E-06	6.8E-06	8.3E-06	8.3E-06	6.3E-06	1.1E-06	2.6E-08	5.6E-02	2.6E-05			
UTERUS (NONGRVD)	1.3E-04	4.7E-06	1.4E-05	4.4E-06	4.4E-06	4.3E-06	3.5E-06	0.0	1.3E-07	2.8E-05			
TOTAL BODY	3.0E-05	3.0E-05	2.7E-05	2.6E-05	2.6E-05	2.2E-05	2.8E-05	2.6E-05	2.5E-05	2.6E-05			

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
OXYGEN-15 HALF-LIFE 3.44E-02 HOURS

SOURCE ORGANS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS				
ADRENALS	1.1E-01	1.7E-06	1.6E-05	9.3E-06	7.6E-06	9.3E-05	3.7E-05	1.8E-05	1.1E-05
BLADDER WALL	8.3E-07	4.4E-03	3.4E-06	2.5E-05	1.4E-05	2.9E-06	2.6E-06	5.6E-07	1.3E-05
BONE (TOTAL)	1.0E-05	4.4E-06	4.5E-06	5.9E-06	5.4E-06	7.4E-06	5.5E-06	7.5E-06	8.3E-06
GI (STOM WALL)	2.2E-05	2.4E-06	3.5E-03	2.5E-05	2.7E-05	2.5E-05	1.4E-05	1.4E-05	1.1E-05
GI (SI)	7.2E-06	2.0E-05	2.0E-05	2.2E-03	1.2E-04	2.1E-05	1.2E-05	2.1E-06	1.2E-05
GI (ULI WALL)	7.9E-06	1.8E-05	2.5E-05	1.7E-04	3.8E-03	2.2E-05	1.9E-05	2.9E-06	1.2E-05
GI (LLI WALL)	2.7E-06	5.3E-05	9.5E-06	5.0E-05	2.2E-05	6.6E-06	2.4E-06	5.9E-07	1.3E-05
KIDNEYS	8.6E-05	2.9E-06	2.5E-05	2.4E-05	2.0E-05	5.5E-03	2.8E-05	7.9E-06	1.1E-05
LIVER	3.7E-05	2.1E-06	1.5E-05	1.3E-05	1.8E-05	3.0E-05	1.0E-03	1.8E-05	8.4E-06
LUNGS	1.7E-05	3.7E-07	1.4E-05	2.5E-06	2.6E-06	7.1E-06	1.8E-05	1.6E-03	1.0E-05
MARROW (RED)	1.8E-05	9.4E-06	7.8E-06	1.9E-05	1.6E-05	1.9E-05	8.1E-06	9.5E-06	1.0E-05
OTH TISS (MUSC)	1.1E-05	1.3E-05	1.1E-05	1.2E-05	1.1E-05	1.1E-05	8.4E-06	1.0E-05	6.6E-05
OVARIES	4.1E-06	4.7E-05	3.9E-06	6.5E-05	9.5E-05	8.7E-06	1.5E-06	1.2E-06	1.5E-05
PANCREAS	6.3E-05	1.9E-06	1.3E-04	1.6E-05	1.3E-05	4.9E-05	3.6E-05	2.1E-05	1.3E-05
SKIN	5.1E-06	4.9E-06	4.4E-06	4.0E-06	4.2E-06	5.0E-06	4.5E-06	5.1E-06	6.8E-06
SPLEEN	4.8E-05	1.7E-06	7.1E-05	1.2E-05	9.2E-06	6.2E-05	7.5E-06	1.6E-05	1.1E-05
TESTES	5.3E-07	3.8E-05	2.0E-07	2.7E-06	3.9E-06	1.1E-06	8.8E-07	1.9E-07	9.3E-06
THYROID	1.5E-06	7.2E-08	1.1E-06	3.0E-07	3.2E-07	7.2E-07	1.4E-06	9.1E-06	1.0E-05
UTERUS (NONGRVD)	2.8E-06	1.1E-04	6.7E-06	6.5E-05	3.3E-05	6.2E-06	3.3E-06	7.2E-07	1.4E-05
TOTAL BODY	3.5E-05	1.6E-05	2.0E-05	3.2E-05	2.5E-05	3.5E-05	3.5E-05	3.3E-05	3.3E-05

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
OXYGEN-15 HALF-LIFE 3.44E-02 HOURS

TARGET ORGANS	SOURCE ORGANS											TOTAL BODY
	OVARIES	PANCREAS	SKELETON					SKIN	SPLEEN	TESTES	THYROID	
			BONE									
			R MARROW	CORT	BONE	TRA	BONE					
ADRENALS	4.6E-06	6.3E-05	1.3E-05	1.3E-05	1.3E-05	4.9E-06	4.5E-05	5.3E-07	1.5E-06	3.9E-05		
BLADDER WALL	5.0E-05	1.5E-06	5.1E-06	4.9E-06	4.9E-06	4.7E-06	1.0E-06	3.8E-05	7.3E-08	3.6E-05		
BONE (TOTAL)	6.9E-06	6.9E-06	1.1E-04	3.3E-04	2.0E-04	6.4E-06	5.8E-06	5.0E-06	5.7E-06	3.3E-05		
GI (STOM WALL)	6.3E-06	1.3E-04	7.5E-06	4.4E-06	4.4E-06	4.9E-06	7.4E-05	8.8E-07	9.7E-07	3.5E-05		
GI (SI)	8.8E-05	1.3E-05	2.0E-05	6.0E-06	6.0E-06	4.2E-06	1.0E-05	4.0E-06	5.9E-08	3.7E-05		
GI (ULI WALL)	8.3E-05	1.6E-05	1.5E-05	5.2E-06	5.2E-06	4.4E-06	1.0E-05	2.4E-06	8.5E-08	3.7E-05		
GI (LLI WALL)	1.1E-04	4.0E-06	2.3E-05	7.1E-06	7.1E-06	4.5E-06	5.2E-06	2.1E-05	1.1E-07	3.7E-05		
KIDNEYS	8.5E-06	4.6E-05	1.8E-05	6.8E-06	6.8E-06	5.6E-06	6.4E-05	7.7E-07	3.8E-07	3.5E-05		
LIVER	4.6E-06	3.1E-05	7.7E-06	5.3E-06	5.3E-06	5.1E-06	8.0E-06	3.9E-07	1.2E-06	3.5E-05		
LUNGS	8.5E-07	1.8E-05	9.0E-06	7.4E-06	7.4E-06	5.1E-06	1.6E-05	1.1E-07	8.0E-06	3.4E-05		
MARROW (RED)	2.3E-05	1.3E-05	7.2E-04	4.4E-05	4.7E-04	5.9E-06	8.5E-06	3.9E-06	6.3E-06	3.4E-05		
OTH TISS (MUSC)	1.5E-05	1.3E-05	9.8E-06	8.3E-06	8.3E-06	6.8E-06	1.1E-05	9.3E-06	1.0E-05	3.3E-05		
OVARIES	1.5E-01	2.9E-06	2.7E-05	8.1E-06	8.1E-06	2.3E-06	8.0E-06	0.0	1.4E-07	3.5E-05		
PANCREAS	4.2E-06	1.7E-02	1.3E-05	6.8E-06	6.8E-06	4.4E-06	1.5E-04	2.9E-07	5.1E-07	3.5E-05		
SKIN	4.0E-06	3.8E-06	5.6E-06	6.5E-06	6.5E-06	6.1E-04	4.8E-06	1.2E-05	6.5E-06	2.9E-05		
SPLEEN	5.2E-06	1.4E-04	6.0E-06	6.3E-06	6.3E-06	5.0E-06	9.5E-03	9.8E-07	9.7E-07	3.5E-05		
TESTES	0.0	4.8E-07	3.2E-06	4.3E-06	4.3E-06	6.2E-06	7.2E-07	4.7E-02	2.6E-08	3.6E-05		
THYROID	1.4E-07	1.4E-06	6.8E-06	8.3E-06	8.3E-06	6.3E-06	1.1E-06	2.6E-08	8.0E-02	3.3E-05		
UTERUS (NONGRVD)	1.3E-04	4.7E-06	1.4E-05	4.4E-06	4.4E-06	4.3E-06	3.5E-06	0.0	1.3E-07	3.5E-05		
TOTAL BODY	3.7E-05	3.7E-05	3.4E-05	3.3E-05	3.3E-05	2.9E-05	3.5E-05	3.3E-05	3.2E-05	3.3E-05		

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DATE OF ISSUE-05-13-75

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
FLUORINE-18 HALF-LIFE 1.83 HOURS

TARGET ORGANS	SOURCE ORGANS									
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)	
			CONTENTS							
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS					
ADRENALS	4.0E-02	1.7E-06	1.5E-05	9.0E-06	7.3E-06	3.6E-06	9.0E-05	3.5E-05	1.8E-05	1.1E-05
BLADDER WALL	8.0E-07	1.8E-03	3.3E-06	2.5E-05	1.4E-05	4.1E-05	2.8E-06	2.5E-06	5.4E-07	1.3E-05
BONE (TOTAL)	9.9E-06	4.3E-06	4.4E-06	5.7E-06	5.3E-06	7.6E-06	7.2E-06	5.3E-06	7.3E-06	8.1E-06
GI (STOM WALL)	2.1E-05	2.4E-06	1.4E-03	2.5E-05	2.6E-05	1.3E-05	2.4E-05	1.4E-05	1.3E-05	1.0E-05
GI (SI)	7.0E-06	1.9E-05	1.9E-05	8.7E-04	1.2E-04	6.5E-05	2.0E-05	1.1E-05	2.0E-06	1.1E-05
GI (ULI WALL)	7.6E-06	1.7E-05	2.4E-05	1.7E-04	1.5E-03	3.1E-05	2.1E-05	1.9E-05	2.8E-06	1.2E-05
GI (ILI WALL)	2.6E-06	5.1E-05	9.2E-06	4.9E-05	2.2E-05	2.3E-03	6.4E-06	2.4E-06	5.7E-07	1.2E-05
KIDNEYS	8.3E-05	2.8E-06	2.4E-05	2.3E-05	2.0E-05	6.0E-06	2.2E-03	2.7E-05	7.6E-06	1.0E-05
LIVER	3.5E-05	2.1E-06	1.5E-05	1.3E-05	1.8E-05	2.5E-06	2.9E-05	4.7E-04	1.7E-05	8.1E-06
LUNGS	1.7E-05	3.6E-07	1.4E-05	2.4E-06	2.5E-06	7.5E-07	6.9E-06	1.7E-05	6.2E-04	9.7E-06
MARROW (RED)	1.8E-05	9.1E-06	7.6E-06	1.8E-05	1.6E-05	2.3E-05	1.8E-05	7.8E-06	9.2E-06	1.0E-05
OTH TISS (MUSC)	1.1E-05	1.3E-05	1.0E-05	1.1E-05	1.1E-05	1.2E-05	1.0E-05	8.1E-06	9.7E-06	2.9E-05
OVARIES	4.0E-06	4.5E-05	3.7E-06	6.3E-05	9.2E-05	1.1E-04	8.4E-06	1.5E-06	1.1E-06	1.4E-05
PANCREAS	6.1E-05	1.9E-06	1.3E-04	1.5E-05	1.3E-05	5.4E-06	4.8E-05	3.5E-05	2.0E-05	1.3E-05
SKIN	5.0E-06	4.7E-06	4.3E-06	3.9E-06	4.0E-06	4.3E-06	4.8E-06	4.4E-06	5.0E-06	6.6E-06
SPLEEN	4.7E-05	1.7E-06	6.9E-05	1.1E-05	8.9E-06	6.9E-06	6.0E-05	7.3E-06	1.5E-05	1.1E-05
TESTES	5.2E-07	3.7E-05	1.9E-07	2.6E-06	3.8E-06	1.5E-05	1.1E-06	8.5E-07	1.8E-07	9.0E-06
THYROID	1.4E-06	7.0E-08	1.1E-06	2.9E-07	3.1E-07	1.3E-07	6.9E-07	1.3E-06	8.8E-06	1.0E-05
UTERUS (NONGRVD)	2.7E-06	1.1E-04	6.5E-06	6.3E-05	3.2E-05	4.0E-05	6.1E-06	3.2E-06	7.0E-07	1.4E-05
TOTAL BODY	2.0E-05	1.4E-05	1.5E-05	2.0E-05	1.7E-05	1.8E-05	2.0E-05	2.0E-05	1.8E-05	1.8E-05

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18F

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
 FLUORINE-18 HALF-LIFE 1.83 HOURS

TARGET ORGANS	SOURCE ORGANS											TOTAL BODY
	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID		
			BONE TRA									
			R	MARROW	CORT	BONE						
ADRENALS	4.4E-06	6.1E-05	1.3E-05	1.2E-05	1.2E-05	4.8E-06	4.4E-05	5.2E-07	1.4E-06	2.4E-05		
BLADDER WALL	4.8E-05	1.4E-06	5.0E-06	4.8E-06	4.8E-06	4.6E-06	9.9E-07	3.7E-05	7.1E-08	2.1E-05		
BONE (TOTAL)	6.7E-06	6.7E-06	4.2E-05	1.3E-04	9.1E-05	6.2E-06	5.6E-06	4.8E-06	5.5E-06	1.8E-05		
GI (STOM WALL)	6.1E-06	1.2E-04	7.2E-06	4.3E-06	4.3E-06	4.7E-06	7.1E-05	8.5E-07	9.4E-07	2.0E-05		
GI (SI)	8.6E-05	1.3E-05	2.0E-05	5.9E-06	5.9E-06	4.0E-06	1.0E-05	3.9E-06	5.7E-08	2.2E-05		
GI (ULI WALL)	8.0E-05	1.6E-05	1.5E-05	5.1E-06	5.1E-06	4.2E-06	1.0E-05	2.3E-06	8.2E-08	2.2E-05		
GI (ILI WALL)	1.0E-04	3.9E-06	2.2E-05	6.9E-06	6.9E-06	4.4E-06	5.1E-06	2.1E-05	1.1E-07	2.2E-05		
KIDNEYS	8.3E-06	4.5E-05	1.7E-05	6.6E-06	6.6E-06	5.5E-06	6.2E-05	7.5E-07	3.7E-07	2.0E-05		
LIVER	4.5E-06	3.0E-05	7.4E-06	5.1E-06	5.1E-06	4.9E-06	7.8E-06	3.8E-07	1.2E-06	2.0E-05		
LUNGS	8.3E-07	1.7E-05	8.7E-06	7.1E-06	7.1E-06	5.0E-06	1.6E-05	1.1E-07	7.8E-06	1.9E-05		
MARROW (RED)	2.2E-05	1.3E-05	3.1E-04	2.5E-05	1.5E-04	5.8E-06	8.2E-06	3.8E-06	6.1E-06	1.9E-05		
OTH TISS (MUSC)	1.4E-05	1.3E-05	9.5E-06	8.1E-06	8.1E-06	6.6E-06	1.1E-05	9.0E-06	1.0E-05	1.8E-05		
OVARIES	5.2E-02	2.8E-06	2.6E-05	7.9E-06	7.9E-06	2.2E-06	7.7E-06	0.0	1.3E-07	2.0E-05		
PANCREAS	4.1E-06	6.7E-03	1.2E-05	6.6E-06	6.6E-06	4.3E-06	1.4E-04	2.8E-07	4.9E-07	2.0E-05		
SKIN	3.8E-06	3.7E-06	5.5E-06	6.3E-06	6.3E-06	2.1E-04	4.6E-06	1.2E-05	6.3E-06	1.4E-05		
SPLEEN	5.1E-06	1.4E-04	5.9E-06	6.1E-06	6.1E-06	4.8E-06	3.8E-03	9.5E-07	9.4E-07	2.0E-05		
TESTES	0.0	4.6E-07	3.2E-06	4.2E-06	4.2E-06	6.0E-06	7.0E-07	1.7E-02	2.5E-08	2.1E-05		
THYROID	1.3E-07	1.3E-06	6.6E-06	8.1E-06	8.1E-06	6.1E-06	1.1E-06	2.5E-08	2.9E-02	1.8E-05		
UTERUS (NONGRVD)	1.3E-04	4.6E-06	1.4E-05	4.2E-06	4.2E-06	4.2E-06	3.4E-06	0.0	1.3E-07	2.0E-05		
TOTAL BODY	2.2E-05	2.2E-05	1.9E-05	1.8E-05	1.8E-05	1.4E-05	2.0E-05	1.8E-05	1.7E-05	1.8E-05		

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
SODIUM-22 HALF-LIFE 2.28E 04 HOURS

TARGET ORGANS	SOURCE ORGANS										
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT					KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI		LLI CONTENTS				
					CONTENTS	CONTENTS					
ADRENALS	3.7E-02	3.9E-06	4.0E-05	1.9E-05	1.7E-05	7.7E-06	1.9E-04	7.3E-05	3.5E-05	2.4E-05	
BLADDER WALL	3.1E-06	2.1E-03	7.3E-06	4.7E-05	2.9E-05	8.8E-05	6.7E-06	4.3E-06	1.4E-06	2.7E-05	
BONE (TOTAL)	2.1E-05	8.7E-06	9.1E-06	1.2E-05	1.1E-05	1.6E-05	1.5E-05	1.1E-05	1.5E-05	1.7E-05	
GI (STOM WALL)	4.4E-05	6.4E-06	1.6E-03	5.3E-05	5.3E-05	2.5E-05	4.8E-05	3.0E-05	2.9E-05	2.2E-05	
GI (SI)	1.5E-05	4.1E-05	3.9E-05	9.9E-04	2.4E-04	1.3E-04	4.3E-05	2.5E-05	4.8E-06	2.4E-05	
GI (ULI WALL)	1.6E-05	3.3E-05	5.1E-05	3.4E-04	1.6E-03	6.4E-05	4.5E-05	3.7E-05	6.5E-06	2.5E-05	
GI (LLI WALL)	5.3E-06	1.1E-04	2.1E-05	1.0E-04	4.6E-05	2.3E-03	1.5E-05	5.2E-06	1.2E-06	2.6E-05	
KIDNEYS	1.7E-04	6.6E-06	5.0E-05	4.7E-05	4.3E-05	1.4E-05	2.4E-03	5.7E-05	1.6E-05	2.2E-05	
LIVER	7.3E-05	4.6E-06	3.1E-05	2.8E-05	3.8E-05	6.2E-06	5.9E-05	6.2E-04	3.6E-05	1.7E-05	
LUNGS	3.6E-05	1.1E-06	2.8E-05	5.3E-06	6.1E-06	2.2E-06	1.5E-05	3.7E-05	6.4E-04	2.0E-05	
MARROW (RED)	3.7E-05	1.8E-05	1.5E-05	3.7E-05	3.2E-05	4.6E-05	3.8E-05	1.6E-05	1.9E-05	2.0E-05	
OTH TISS (MUSC)	2.4E-05	2.7E-05	2.2E-05	2.4E-05	2.3E-05	2.6E-05	2.2E-05	1.7E-05	2.0E-05	3.8E-05	
OVARIES	6.3E-06	9.4E-05	1.4E-05	1.4E-04	1.4E-04	2.5E-04	2.0E-05	9.6E-06	2.6E-06	3.0E-05	
PANCREAS	1.3E-04	4.2E-06	2.6E-04	3.0E-05	3.0E-05	1.1E-05	1.0E-04	6.7E-05	3.9E-05	2.7E-05	
SKIN	1.1E-05	1.1E-05	9.5E-06	8.9E-06	8.8E-06	9.8E-06	1.0E-05	9.7E-06	1.1E-05	1.4E-05	
SPLEEN	9.3E-05	3.5E-06	1.4E-04	2.5E-05	2.1E-05	1.5E-05	1.3E-04	1.6E-05	3.1E-05	2.3E-05	
TESTES	1.3E-06	7.3E-05	1.8E-06	7.5E-06	7.8E-06	2.7E-05	2.6E-06	2.6E-06	5.3E-07	1.9E-05	
THYROID	3.5E-06	2.4E-07	2.6E-06	8.1E-07	8.6E-07	4.1E-07	1.7E-06	3.1E-06	1.8E-05	2.1E-05	
UTERUS (NONGRVD)	6.8E-06	2.2E-04	1.5E-05	1.3E-04	7.2E-05	8.6E-05	1.5E-05	7.6E-06	2.5E-06	3.2E-05	
TOTAL BODY	3.2E-05	2.9E-05	2.9E-05	3.5E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05	2.8E-05	2.8E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
SODIUM-22 HALF-LIFE 2.28E 04 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY
	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	
			BONE								
			R	NARROW	CORT	BONE					
ADRENALS	9.0E-06	1.2E-04	3.4E-05	2.9E-05	2.9E-05	1.2E-05	9.9E-05	1.3E-06	3.4E-06	4.3E-05	
BLADDER WALL	1.0E-04	3.4E-06	1.5E-05	1.0E-05	1.0E-05	1.2E-05	3.8E-06	7.6E-05	2.5E-07	3.5E-05	
BONE (TOTAL)	1.4E-05	1.4E-05	5.5E-05	1.4E-04	1.1E-04	1.3E-05	1.2E-05	1.0E-05	1.2E-05	2.8E-05	
GI (STOM WALL)	1.4E-05	2.6E-04	1.7E-05	9.0E-06	9.0E-06	1.0E-05	1.5E-04	1.7E-06	2.4E-06	3.1E-05	
GI (SI)	1.7E-04	2.8E-05	4.0E-05	1.2E-05	1.2E-05	9.1E-06	2.2E-05	8.5E-06	5.1E-07	3.6E-05	
GI (ULI WALL)	1.6E-04	3.4E-05	3.0E-05	1.1E-05	1.1E-05	9.4E-06	2.2E-05	5.6E-06	6.0E-07	3.5E-05	
GI (LLI WALL)	2.1E-04	9.4E-06	4.5E-05	1.5E-05	1.5E-05	9.7E-06	1.0E-05	4.0E-05	3.5E-07	3.6E-05	
KIDNEYS	1.7E-05	9.3E-05	3.8E-05	1.6E-05	1.6E-05	1.2E-05	1.3E-04	2.2E-06	1.7E-06	3.2E-05	
LIVER	1.0E-05	6.2E-05	1.6E-05	1.1E-05	1.1E-05	1.1E-05	1.7E-05	1.4E-06	3.0E-06	3.3E-05	
LUNGS	2.3E-06	3.5E-05	1.9E-05	1.5E-05	1.5E-05	1.1E-05	3.3E-05	4.6E-07	1.7E-05	2.8E-05	
MARROW (RED)	4.5E-05	2.6E-05	3.2E-04	4.8E-05	1.5E-04	1.2E-05	1.7E-05	7.9E-06	1.3E-05	3.1E-05	
OTH TISS (MUSC)	3.0E-05	2.7E-05	2.0E-05	1.7E-05	1.7E-05	1.4E-05	2.3E-05	1.9E-05	2.1E-05	2.8E-05	
OVARIES	5.0E-02	1.0E-05	5.2E-05	1.5E-05	1.5E-05	7.3E-06	1.3E-05	0.0	4.2E-07	3.2E-05	
PANCREAS	1.0E-05	7.4E-03	2.2E-05	1.6E-05	1.6E-05	8.6E-06	2.8E-04	1.4E-06	2.9E-06	3.1E-05	
SKIN	8.5E-06	8.4E-06	1.2E-05	1.4E-05	1.4E-05	1.9E-04	1.0E-05	2.5E-05	1.4E-05	2.1E-05	
SPLEEN	9.7E-06	2.8E-04	1.4E-05	1.2E-05	1.2E-05	1.1E-05	4.3E-03	1.5E-06	2.7E-06	3.2E-05	
TESTES	0.0	1.6E-06	5.5E-06	1.0E-05	1.0E-05	1.4E-05	1.7E-06	1.7E-02	1.1E-07	3.3E-05	
THYROID	4.2E-07	2.4E-06	1.3E-05	1.5E-05	1.5E-05	1.2E-05	2.6E-06	1.1E-07	2.8E-02	2.8E-05	
UTERUS (NONGRVD)	2.6E-04	9.5E-06	2.7E-05	1.1E-05	1.1E-05	1.0E-05	6.7E-06	0.0	4.0E-07	3.5E-05	
TOTAL BODY	3.6E-05	3.6E-05	3.0E-05	2.8E-05	2.8E-05	2.0E-05	3.2E-05	2.8E-05	2.6E-05	2.8E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
CHROMIUM-51 HALF-LIFE 665. HOURS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	SOURCE ORGANS								OTHER TISSUE (MUSCLE)
			INTESTINAL TRACT				LIVER	LUNGS	KIDNEYS		
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS	LLI CONTENTS					
ADRENALS	8.4E-04	5.1E-08	5.6E-07	3.6E-07	2.3E-07	1.2E-07	2.6E-06	1.2E-06	6.0E-07	3.7E-07	
BLADDER WALL	2.8E-08	3.9E-05	7.7E-08	7.1E-07	5.0E-07	1.5E-06	8.3E-08	5.7E-08	1.5E-08	4.3E-07	
BONE (TOTAL)	3.7E-07	1.7E-07	1.7E-07	2.2E-07	2.0E-07	2.9E-07	2.6E-07	2.0E-07	2.7E-07	2.6E-07	
GI (STOM WALL)	7.2E-07	7.3E-08	3.0E-05	8.7E-07	9.0E-07	4.4E-07	8.2E-07	4.7E-07	4.5E-07	3.4E-07	
GI (SI)	2.2E-07	6.8E-07	6.4E-07	1.9E-05	4.0E-06	2.2E-06	6.9E-07	4.0E-07	5.6E-08	3.8E-07	
GI (ULI WALL)	2.4E-07	5.8E-07	8.4E-07	6.1E-06	3.0E-05	1.0E-06	7.0E-07	6.1E-07	7.2E-08	4.0E-07	
GI (LLI WALL)	6.8E-08	1.7E-06	3.1E-07	1.7E-06	7.3E-07	4.4E-05	2.1E-07	6.7E-08	2.4E-08	4.1E-07	
KIDNEYS	2.8E-06	7.9E-08	8.4E-07	7.5E-07	6.7E-07	2.2E-07	5.2E-05	9.3E-07	2.3E-07	3.4E-07	
LIVER	1.2E-06	5.9E-08	4.9E-07	4.5E-07	6.2E-07	7.6E-08	9.5E-07	1.2E-05	5.9E-07	2.7E-07	
LUNGS	5.9E-07	8.5E-09	4.3E-07	7.0E-08	7.3E-08	2.3E-08	2.2E-07	6.0E-07	1.4E-05	3.3E-07	
MARROW (RED)	6.7E-07	3.7E-07	2.9E-07	7.2E-07	6.2E-07	8.6E-07	6.8E-07	3.0E-07	3.4E-07	3.7E-07	
OTH TISS (MUSC)	3.7E-07	4.3E-07	3.4E-07	3.8E-07	3.6E-07	4.1E-07	3.4E-07	2.7E-07	3.3E-07	7.0E-07	
OVARIES	1.4E-07	1.7E-06	1.1E-07	2.4E-06	3.0E-06	4.5E-06	3.0E-07	9.3E-08	3.3E-08	4.9E-07	
PANCREAS	2.1E-06	7.1E-08	4.3E-06	5.0E-07	5.3E-07	1.8E-07	1.6E-06	1.0E-06	6.4E-07	4.4E-07	
SKIN	1.5E-07	1.5E-07	1.3E-07	1.2E-07	1.2E-07	1.4E-07	1.5E-07	1.4E-07	1.5E-07	2.1E-07	
SPLEEN	1.6E-06	4.4E-08	2.4E-06	3.8E-07	3.3E-07	2.0E-07	2.1E-06	2.3E-07	5.5E-07	3.6E-07	
TESTES	1.4E-08	1.2E-06	1.2E-08	8.8E-08	9.7E-08	5.0E-07	3.2E-08	2.4E-08	4.3E-09	2.9E-07	
THYROID	4.3E-08	1.5E-09	3.3E-08	7.3E-09	7.9E-09	3.1E-09	1.9E-08	5.2E-08	2.4E-07	3.3E-07	
UTERUS (NONGRAD)	4.0E-07	3.7E-06	2.1E-07	2.2E-06	1.1E-06	1.6E-06	2.4E-07	1.0E-07	2.4E-08	5.5E-07	
TOTAL BODY	5.6E-07	5.0E-07	5.0E-07	6.1E-07	5.6E-07	5.7E-07	5.6E-07	5.6E-07	5.0E-07	4.9E-07	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCl-H)
GALLIUM-68 HALF-LIFE 1.14 HOURS

TARGET ORGANS	SOURCE ORGANS									
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)	
			CONTENTS							
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS					
			CONTENTS	CONTENTS	CONTENTS					
ADRENALS	1.2E-01	1.6E-06	1.5E-05	8.6E-06	7.1E-06	3.4E-06	8.6E-05	3.4E-05	1.7E-05	1.1E-05
BLADDER WALL	8.1E-07	4.5E-03	3.2E-06	2.3E-05	1.3E-05	3.9E-05	2.7E-06	2.4E-06	5.2E-07	1.2E-05
BONE (TOTAL)	9.5E-06	4.1E-06	4.2E-06	5.4E-06	5.0E-06	7.2E-06	6.8E-06	5.1E-06	7.0E-06	7.7E-06
GI (STOM WALL)	2.0E-05	2.3E-06	3.5E-03	2.4E-05	2.5E-05	1.2E-05	2.3E-05	1.3E-05	1.3E-05	9.8E-06
GI (SI)	6.7E-06	1.8E-05	1.8E-05	2.2E-03	1.1E-04	6.2E-05	1.9E-05	1.1E-05	2.0E-06	1.1E-05
GI (ULI WALL)	7.3E-06	1.6E-05	2.3E-05	1.6E-04	3.9E-03	2.9E-05	2.0E-05	1.8E-05	2.7E-06	1.1E-05
GI (LLI WALL)	2.5E-06	4.9E-05	8.8E-06	4.7E-05	2.1E-05	6.2E-03	6.1E-06	2.2E-06	5.5E-07	1.2E-05
KIDNEYS	8.0E-05	2.7E-06	2.3E-05	2.2E-05	1.9E-05	5.8E-06	5.6E-03	2.6E-05	7.3E-06	1.0E-05
LIVER	3.4E-05	2.0E-06	1.4E-05	1.3E-05	1.7E-05	2.4E-06	2.8E-05	1.1E-03	1.7E-05	7.8E-06
LUNGS	1.6E-05	3.5E-07	1.3E-05	2.3E-06	2.4E-06	7.3E-07	6.6E-06	1.7E-05	1.7E-03	9.3E-06
MARROW (RED)	1.7E-05	8.7E-06	7.3E-06	1.7E-05	1.5E-05	2.2E-05	1.7E-05	7.5E-06	8.8E-06	9.5E-06
OTH TISS (MUSC)	1.1E-05	1.2E-05	9.8E-06	1.1E-05	1.0E-05	1.2E-05	1.0E-05	7.8E-06	9.3E-06	6.7E-05
OVARIES	3.8E-06	4.3E-05	3.8E-06	6.1E-05	8.6E-05	1.1E-04	8.2E-06	1.6E-06	1.1E-06	1.4E-05
PANCREAS	5.8E-05	1.8E-06	1.2E-04	1.4E-05	1.2E-05	5.2E-06	4.6E-05	3.3E-05	1.9E-05	1.2E-05
SKIN	4.8E-06	4.5E-06	4.1E-06	3.7E-06	3.9E-06	4.1E-06	4.6E-06	4.2E-06	4.7E-06	6.4E-06
SPLEEN	4.5E-05	1.6E-06	6.6E-05	1.1E-05	8.6E-06	6.6E-06	5.7E-05	7.0E-06	1.5E-05	1.0E-05
TESTES	5.0E-07	3.5E-05	2.3E-07	2.6E-06	3.6E-06	1.4E-05	1.1E-06	8.5E-07	1.8E-07	8.6E-06
THYROID	1.4E-06	7.0E-08	1.1E-06	2.9E-07	3.1E-07	1.3E-07	6.7E-07	1.3E-06	8.4E-06	9.6E-06
UTERUS (NONGRVD)	2.7E-06	1.0E-04	6.3E-06	6.0E-05	3.1E-05	3.9E-05	5.8E-06	3.1E-06	6.8E-07	1.3E-05
TOTAL BODY	3.4E-05	1.6E-05	1.9E-05	3.2E-05	2.4E-05	2.7E-05	3.4E-05	3.4E-05	3.3E-05	3.3E-05

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
GALLIUM-68 HALP-LIFE 1.14 HOURS

SOURCE ORGANS

TARGET ORGANS	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	TOTAL BODY
			R MARROW								
			CORT	BONE	TRA	BONE					
ADRENALS	4.2E-06	5.8E-05	1.2E-05	1.2E-05	1.2E-05	4.6E-06	4.2E-05	5.0E-07	1.4E-06	3.8E-05	
BLADDER WALL	4.6E-05	1.4E-06	4.9E-06	4.5E-06	4.5E-06	4.4E-06	1.0E-06	3.5E-05	7.0E-08	3.5E-05	
BONE (TOTAL)	6.4E-06	6.4E-06	1.1E-04	3.4E-04	2.0E-04	5.9E-06	5.3E-06	4.6E-06	5.3E-06	3.3E-05	
GI (STOM WALL)	5.8E-06	1.2E-04	7.0E-06	4.1E-06	4.1E-06	4.5E-06	6.8E-05	8.1E-07	9.0E-07	3.5E-05	
GI (SI)	8.2E-05	1.2E-05	1.9E-05	5.6E-06	5.6E-06	3.9E-06	9.6E-06	3.7E-06	6.5E-08	3.6E-05	
GI (ULI WALL)	7.7E-05	1.5E-05	1.4E-05	4.9E-06	4.9E-06	4.1E-06	9.7E-06	2.3E-06	8.9E-08	3.6E-05	
GI (LLI WALL)	9.8E-05	3.7E-06	2.1E-05	6.6E-06	6.6E-06	4.2E-06	4.8E-06	2.0E-05	1.1E-07	3.6E-05	
KIDNEYS	7.9E-06	4.3E-05	1.7E-05	6.4E-06	6.4E-06	5.2E-06	5.9E-05	7.3E-07	3.8E-07	3.5E-05	
LIVER	4.3E-06	2.8E-05	7.1E-06	4.9E-06	4.9E-06	4.7E-06	7.5E-06	3.8E-07	1.1E-06	3.5E-05	
LUNGS	8.1E-07	1.7E-05	8.4E-06	6.8E-06	6.8E-06	4.8E-06	1.5E-05	1.1E-07	7.4E-06	3.3E-05	
MARROW (RED)	2.1E-05	1.2E-05	7.4E-04	4.5E-05	4.8E-04	5.5E-06	7.9E-06	3.7E-06	5.8E-06	3.4E-05	
OTH TISS (MUSC)	1.4E-05	1.2E-05	9.1E-06	7.7E-06	7.7E-06	6.4E-06	1.0E-05	8.6E-06	9.6E-06	3.3E-05	
OVARIES	1.5E-01	2.9E-06	2.5E-05	7.5E-06	7.5E-06	2.2E-06	7.2E-06	0.0	1.3E-07	3.4E-05	
PANCREAS	4.0E-06	1.7E-02	1.2E-05	6.3E-06	6.3E-06	4.1E-06	1.3E-04	2.9E-07	4.9E-07	3.4E-05	
SKIN	3.7E-06	3.6E-06	5.2E-06	6.1E-06	6.1E-06	6.2E-04	4.4E-06	1.1E-05	6.0E-06	2.9E-05	
SPLEEN	4.8E-06	1.3E-04	5.7E-06	5.9E-06	5.9E-06	4.6E-06	9.7E-03	8.9E-07	9.2E-07	3.5E-05	
TESTES	0.0	4.6E-07	3.0E-06	4.0E-06	4.0E-06	5.8E-06	6.8E-07	4.7E-02	2.5E-08	3.6E-05	
THYROID	1.3E-07	1.3E-06	6.3E-06	7.6E-06	7.6E-06	5.8E-06	1.0E-06	2.5E-08	8.2E-02	3.3E-05	
UTERUS (NONGRVD)	1.2E-04	4.4E-06	1.3E-05	4.1E-06	4.1E-06	4.0E-06	3.3E-06	0.0	1.2E-07	3.5E-05	
TOTAL BODY	3.6E-05	3.6E-05	3.4E-05	3.2E-05	3.2E-05	2.9E-05	3.4E-05	3.2E-05	3.2E-05	3.3E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
YTTRIUM-90 HALF-LIFE 64.0 HOURS

SOURCE ORGANS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS				
ADRENALS	1.4E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BLADDER WALL	0.0	5.0E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BONE (TOTAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GI (STOM WALL)	0.0	0.0	4.0E-03	0.0	0.0	0.0	0.0	0.0	0.0
GI (SI)	0.0	0.0	0.0	2.5E-03	0.0	0.0	0.0	0.0	0.0
GI (ULI WALL)	0.0	0.0	0.0	0.0	4.5E-03	0.0	0.0	0.0	0.0
GI (LLI WALL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KIDNEYS	0.0	0.0	0.0	0.0	0.0	6.4E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	1.1E-03	0.0	0.0
LUNGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0E-03	0.0
MARROW (RED)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTH TISS (MUSC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1E-05
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SKIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UTERUS (NONGRVD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BODY	2.8E-05	3.2E-06	8.5E-06	2.3E-05	1.4E-05	1.7E-05	2.8E-05	2.8E-05	2.8E-05

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
 YTTRIUM-90 HALF-LIFE 64.0 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY	
	OVARIES	PANCREAS	SKELETON					SKIN	SPLEEN	TESTES		THYROID
			BONE									
			R	MARROW	CORT	BONE	TRA					
ADRENALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
BLADDER WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
BONE (TOTAL)	0.0	0.0	1.1E-04	4.0E-04	2.3E-04	0.0	0.0	0.0	0.0	0.0	2.8E-05	
GI (STOM WALL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
GI (SI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
GI (ULI WALL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
GI (LLI WALL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
LUNGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
MARROW (RED)	0.0	0.0	8.6E-04	3.3E-05	5.7E-04	0.0	0.0	0.0	0.0	0.0	2.8E-05	
OTH TISS (MUSC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
OVARIES	1.8E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
PANCREAS	0.0	2.0E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
SKIN	0.0	0.0	0.0	0.0	0.0	0.0	7.6E-04	0.0	0.0	0.0	2.8E-05	
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1E-02	0.0	0.0	2.8E-05	
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7E-02	0.0	2.8E-05	
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9E-02	2.8E-05	
UTERUS (NONGRVD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8E-05	
TOTAL BODY	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	2.8E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
TECHNETIUM-99M HALF-LIFE 6.03 HOURS

SOURCE ORGANS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS	LLI CONTENTS			
ADRENALS	3.1E-03	1.5E-07	2.7E-06	1.0E-06	9.1E-07	3.6E-07	1.1E-05	4.5E-06	2.7E-06
BLADDER WALL	1.3E-07	1.6E-04	2.7E-07	2.6E-06	2.2E-06	6.9E-06	2.8E-07	1.6E-07	3.6E-08
BONE (TOTAL)	2.0E-06	9.2E-07	9.0E-07	1.3E-06	1.1E-06	1.6E-06	1.4E-06	1.1E-06	1.5E-06
GI (STOM WALL)	2.9E-06	2.7E-07	1.3E-04	3.7E-06	3.8E-06	1.8E-06	3.6E-06	1.9E-06	1.8E-06
GI (SI)	8.3E-07	3.0E-06	2.7E-06	7.8E-05	1.7E-05	9.4E-06	2.9E-06	1.6E-06	1.9E-07
GI (ULI WALL)	9.3E-07	2.2E-06	3.5E-06	2.4E-05	1.3E-04	4.2E-06	2.9E-06	2.5E-06	2.2E-07
GI (LLI WALL)	2.2E-07	7.4E-06	1.2E-06	7.3E-06	3.2E-06	1.9E-04	7.2E-07	2.3E-07	7.1E-08
KIDNEYS	1.1E-05	2.6E-07	3.5E-06	3.2E-06	2.8E-06	8.6E-07	1.9E-04	3.9E-06	8.4E-07
LIVER	4.9E-06	1.7E-07	2.0E-06	1.8E-06	2.6E-06	2.5E-07	3.9E-06	4.6E-05	2.5E-06
LUNGS	2.4E-06	2.4E-08	1.7E-06	2.2E-07	2.6E-07	7.9E-08	8.5E-07	2.5E-06	5.2E-05
MARROW (RED)	3.6E-06	2.2E-06	1.6E-06	4.3E-06	3.7E-06	5.1E-06	3.8E-06	1.6E-06	1.9E-06
OTH TISS (MUSC)	1.4E-06	1.8E-06	1.4E-06	1.5E-06	1.5E-06	1.7E-06	1.3E-06	1.1E-06	1.3E-06
OVARIES	6.1E-07	7.3E-06	5.0E-07	1.1E-05	1.2E-05	1.8E-05	1.1E-06	4.5E-07	9.4E-08
PANCREAS	9.0E-06	2.3E-07	1.8E-05	2.1E-06	2.3E-06	7.4E-07	6.6E-06	4.2E-06	2.6E-06
SKIN	5.1E-07	5.5E-07	4.4E-07	4.1E-07	4.1E-07	4.8E-07	5.3E-07	4.9E-07	5.3E-07
SPLEEN	6.3E-06	6.6E-07	1.0E-05	1.5E-06	1.4E-06	8.0E-07	8.6E-06	9.2E-07	2.3E-06
TESTES	3.2E-08	4.7E-06	5.1E-08	3.1E-07	2.7E-07	1.8E-06	8.8E-08	6.2E-08	7.9E-09
THYROID	1.3E-07	2.1E-09	8.7E-08	1.5E-08	1.6E-08	5.4E-09	4.8E-08	1.5E-07	9.2E-07
UTERUS (NONGRVD)	1.1E-06	1.6E-05	7.7E-07	9.6E-06	5.4E-06	7.1E-06	9.4E-07	3.9E-07	8.2E-08
TOTAL BODY	2.2E-06	1.9E-06	1.9E-06	2.4E-06	2.2E-06	2.3E-06	2.2E-06	2.2E-06	2.0E-06

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99mTc

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
TECHNETIUM-99M HALF-LIFE 6.03 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY
	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	
			BONE TRA								
			R MARROW	CORT	BONE	BONE					
ADRENALS	3.3E-07	9.1E-06	2.3E-06	1.1E-06	1.1E-06	6.8E-07	6.3E-06	3.2E-08	1.3E-07	2.3E-06	
BLADDER WALL	7.2E-06	1.4E-07	9.9E-07	5.1E-07	5.1E-07	4.9E-07	1.2E-07	4.8E-06	2.1E-09	2.3E-06	
BONE (TOTAL)	1.5E-06	1.5E-06	4.0E-06	1.2E-05	1.0E-05	9.9E-07	1.1E-06	9.2E-07	1.0E-06	2.5E-06	
GI (STOM WALL)	8.1E-07	1.8E-05	9.5E-07	5.5E-07	5.5E-07	5.4E-07	1.0E-05	3.2E-08	4.5E-08	2.2E-06	
GI (SI)	1.2E-05	1.8E-06	2.6E-06	7.3E-07	7.3E-07	4.5E-07	1.4E-06	3.6E-07	9.3E-09	2.5E-06	
GI (ULI WALL)	1.1E-05	2.1E-06	2.1E-06	6.9E-07	6.9E-07	4.5E-07	1.4E-06	3.1E-07	1.1E-08	2.4E-06	
GI (LLI WALL)	1.5E-05	5.7E-07	2.9E-06	1.0E-06	1.0E-06	4.8E-07	6.1E-07	2.7E-06	4.3E-09	2.3E-06	
KIDNEYS	9.2E-07	6.6E-06	2.2E-06	8.2E-07	8.2E-07	5.7E-07	9.1E-06	4.0E-08	3.4E-08	2.2E-06	
LIVER	5.4E-07	4.4E-06	9.2E-07	6.6E-07	6.6E-07	5.3E-07	9.8E-07	3.1E-08	9.3E-08	2.2E-06	
LUNGS	6.0E-08	2.5E-06	1.2E-06	9.4E-07	9.4E-07	5.8E-07	2.3E-06	6.6E-09	9.4E-07	2.0E-06	
MARROW (RED)	5.5E-06	2.8E-06	3.1E-05	4.1E-06	9.1E-06	9.5E-07	1.7E-06	7.3E-07	1.1E-06	2.9E-06	
OTH TISS (MUSC)	2.0E-06	1.8E-06	1.2E-06	9.8E-07	9.8E-07	7.2E-07	1.4E-06	1.1E-06	1.3E-06	1.9E-06	
OVARIES	4.2E-03	4.1E-07	3.2E-06	7.1E-07	7.1E-07	3.8E-07	4.0E-07	0.0	4.9E-09	2.4E-06	
PANCREAS	5.0E-07	5.8E-04	1.7E-06	8.5E-07	8.5E-07	4.4E-07	1.9E-05	5.5E-08	7.2E-08	2.4E-06	
SKIN	4.1E-07	4.0E-07	5.9E-07	6.5E-07	6.5E-07	1.6E-05	4.7E-07	1.4E-06	7.3E-07	1.3E-06	
SPLEEN	4.9E-07	1.9E-05	9.2E-07	5.8E-07	5.8E-07	5.4E-07	3.3E-04	1.7E-08	1.1E-07	2.2E-06	
TESTES	0.0	5.5E-08	4.5E-07	6.4E-07	6.4E-07	9.1E-07	4.8E-08	1.4E-03	5.0E-10	1.7E-06	
THYROID	4.9E-09	1.2E-07	6.8E-07	7.9E-07	7.9E-07	6.9E-07	8.7E-08	5.0E-10	2.3E-03	1.5E-06	
UTERUS (NONGRVD)	2.1E-05	5.3E-07	2.2E-06	5.7E-07	5.7E-07	4.0E-07	4.0E-07	0.0	4.6E-09	2.6E-06	
TOTAL BODY	2.6E-06	2.6E-06	2.2E-06	2.0E-06	2.0E-06	1.3E-06	2.2E-06	1.9E-06	1.8E-06	2.0E-06	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/ μ CI-H)
INDIUM-111 HALF-LIFE 67.4 HOURS

SOURCE ORGANS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS	LLI CONTENTS			
ADRENALS	7.4E-03	5.7E-07	7.3E-06	4.4E-06	2.8E-06	1.3E-06	3.4E-05	1.5E-05	7.6E-06
BLADDER WALL	3.6E-07	4.5E-04	7.5E-07	8.0E-06	6.4E-06	2.0E-05	9.3E-07	5.2E-07	1.5E-07
BONE (TOTAL)	5.2E-06	2.3E-06	2.3E-06	3.2E-06	2.9E-06	4.2E-06	3.7E-06	2.9E-06	3.8E-06
GI (STOM WALL)	8.8E-06	8.5E-07	3.4E-04	1.1E-05	1.2E-05	5.4E-06	1.0E-05	5.8E-06	5.7E-06
GI (SI)	2.5E-06	8.6E-06	7.9E-06	2.1E-04	5.4E-05	3.0E-05	8.6E-06	5.0E-06	6.1E-07
GI (ULI WALL)	2.8E-06	6.9E-06	1.1E-05	8.3E-05	3.3E-04	1.4E-05	8.6E-06	7.5E-06	7.4E-07
GI (LLI WALL)	7.1E-07	2.2E-05	3.8E-06	2.4E-05	9.5E-06	4.7E-04	2.5E-06	7.3E-07	3.0E-07
KIDNEYS	3.7E-05	8.5E-07	1.1E-05	9.2E-06	8.3E-06	2.8E-06	5.2E-04	1.2E-05	2.7E-06
LIVER	1.5E-05	6.3E-07	5.9E-06	5.6E-06	7.8E-06	8.4E-07	1.2E-05	1.3E-04	7.7E-06
LUNGS	7.6E-06	8.2E-08	5.2E-06	7.5E-07	8.3E-07	2.6E-07	2.5E-06	7.8E-06	1.4E-04
MARROW (RED)	9.4E-06	5.3E-06	4.0E-06	1.1E-05	9.1E-06	1.3E-05	9.6E-06	4.1E-06	4.8E-06
OTH TISS (MUSC)	4.8E-06	5.5E-06	4.3E-06	4.8E-06	4.5E-06	5.2E-06	4.4E-06	3.4E-06	4.2E-06
OVARIES	1.8E-06	2.3E-05	1.3E-06	3.3E-05	3.7E-05	6.4E-05	3.6E-06	1.4E-06	3.6E-07
PANCREAS	2.6E-05	8.6E-07	5.7E-05	6.1E-06	7.1E-06	2.1E-06	2.0E-05	1.2E-05	7.7E-06
SKIN	1.8E-06	1.7E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.8E-06	1.6E-06	1.8E-06
SPLEEN	2.0E-05	7.6E-07	3.1E-05	4.6E-06	4.2E-06	2.4E-06	2.8E-05	2.8E-06	7.1E-06
TESTES	1.4E-07	1.4E-05	1.8E-07	1.0E-06	9.8E-07	5.9E-06	3.4E-07	2.5E-07	3.9E-08
THYROID	4.7E-07	1.2E-08	3.5E-07	6.9E-08	7.5E-08	2.7E-08	2.0E-07	6.2E-07	2.6E-06
UTERUS (NONGRVD)	5.8E-06	4.9E-05	2.4E-06	2.9E-05	1.5E-05	2.1E-05	3.1E-06	1.2E-06	2.8E-07
TOTAL BODY	6.6E-06	6.2E-06	6.1E-06	7.3E-06	6.8E-06	6.9E-06	6.6E-06	6.6E-06	5.9E-06

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111In

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
INDIUM-111 HALF-LIFE 67.4 HOURS

(CONTINUED)

SOURCE ORGANS

TARGET ORGANS	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	TOTAL BODY
			R	MARROW	CORT	BONE TRA					
ADRENALS	1.1E-06	2.6E-05	7.9E-06	3.9E-06	3.9E-06	3.9E-06	2.4E-06	2.0E-05	1.4E-07	4.7E-07	7.0E-06
BLADDER WALL	2.1E-05	4.7E-07	2.4E-06	1.5E-06	1.5E-06	1.5E-06	1.6E-06	4.7E-07	1.5E-05	1.2E-08	6.9E-06
BONE (TOTAL)	3.8E-06	3.6E-06	1.2E-05	3.0E-05	2.6E-05	2.6E-05	2.9E-06	2.9E-06	2.4E-06	2.6E-06	6.9E-06
GI (STOM WALL)	2.4E-06	5.9E-05	3.2E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	3.0E-05	1.5E-07	1.5E-07	7.1E-06
GI (SI)	3.8E-05	5.5E-06	7.9E-06	2.3E-06	2.3E-06	2.3E-06	1.5E-06	4.2E-06	1.2E-06	4.2E-08	7.5E-06
GI (ULI WALL)	3.7E-05	6.6E-06	6.4E-06	2.2E-06	2.2E-06	2.2E-06	1.4E-06	3.8E-06	1.1E-06	3.3E-08	7.0E-06
GI (LLI WALL)	4.8E-05	1.7E-06	9.0E-06	3.2E-06	3.2E-06	3.2E-06	1.5E-06	1.9E-06	8.3E-06	2.2E-08	6.7E-06
KIDNEYS	2.9E-06	1.9E-05	6.8E-06	2.7E-06	2.7E-06	2.7E-06	2.0E-06	2.8E-05	1.7E-07	1.2E-07	6.6E-06
LIVER	1.7E-06	1.3E-05	2.9E-06	2.0E-06	2.0E-06	2.0E-06	1.7E-06	3.0E-06	1.2E-07	3.5E-07	6.5E-06
LUNGS	2.2E-07	7.6E-06	3.7E-06	3.0E-06	3.0E-06	3.0E-06	1.9E-06	6.9E-06	3.4E-08	2.9E-06	5.9E-06
MARROW (RED)	1.3E-05	6.8E-06	7.5E-05	1.3E-05	2.6E-05	2.6E-05	2.7E-06	4.4E-06	1.9E-06	2.9E-06	7.7E-06
OTH TISS (MUSC)	6.3E-06	5.7E-06	3.8E-06	3.2E-06	3.2E-06	3.2E-06	2.5E-06	4.6E-06	3.6E-06	4.3E-06	5.6E-06
OVARIES	1.0E-02	1.0E-06	7.7E-06	2.2E-06	2.2E-06	2.2E-06	1.4E-06	1.7E-06	0.0	2.5E-08	7.0E-06
PANCREAS	1.5E-06	1.6E-03	4.9E-06	3.1E-06	3.1E-06	3.1E-06	1.7E-06	6.1E-05	2.1E-07	3.0E-07	7.8E-06
SKIN	1.4E-06	1.3E-06	2.0E-06	2.3E-06	2.3E-06	2.3E-06	3.7E-05	1.5E-06	4.9E-06	2.5E-06	3.7E-06
SPLEEN	1.6E-06	6.2E-05	2.7E-06	2.0E-06	2.0E-06	2.0E-06	1.7E-06	9.1E-04	8.9E-08	3.5E-07	6.8E-06
TESTES	0.0	2.1E-07	1.0E-06	1.9E-06	1.9E-06	1.9E-06	3.4E-06	2.0E-07	3.6E-03	3.3E-09	4.9E-06
THYROID	2.5E-08	4.5E-07	2.2E-06	2.8E-06	2.8E-06	2.8E-06	2.4E-06	3.4E-07	3.3E-09	5.8E-03	5.2E-06
UTERUS (NONGRVD)	6.5E-05	1.9E-06	6.7E-06	1.8E-06	1.8E-06	1.8E-06	1.2E-06	1.2E-06	0.0	2.4E-08	7.8E-06
TOTAL BODY	7.7E-06	7.5E-06	6.4E-06	5.9E-06	5.9E-06	5.9E-06	3.8E-06	6.6E-06	5.6E-06	5.3E-06	5.8E-06

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
IODINE-123 HALF-LIFE 13.0 HOURS

SOURCE ORGANS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS	LLI CONTENTS	KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)
ADRENALS	5.3E-03	2.0E-07	3.1E-06	1.4E-06	1.1E-06	4.6E-07	1.7E-05	6.6E-06	3.3E-06	2.2E-06
BLADDER WALL	1.5E-07	2.8E-04	3.1E-07	3.3E-06	2.6E-06	8.8E-06	3.4E-07	1.9E-07	4.9E-08	2.5E-06
BONE (TOTAL)	2.7E-06	1.0E-06	1.1E-06	1.5E-06	1.4E-06	2.3E-06	1.8E-06	1.4E-06	2.0E-06	1.3E-06
GI (STOM WALL)	3.6E-06	3.2E-07	2.2E-04	4.8E-06	5.3E-06	2.2E-06	4.3E-06	2.3E-06	2.5E-06	1.8E-06
GI (SI)	9.8E-07	3.6E-06	3.3E-06	1.3E-04	2.6E-05	1.4E-05	3.6E-06	2.0E-06	2.3E-07	2.1E-06
GI (ULI WALL)	1.1E-06	2.7E-06	4.7E-06	4.1E-05	2.2E-04	6.3E-06	3.5E-06	3.2E-06	2.8E-07	2.2E-06
GI (LLI WALL)	2.6E-07	9.8E-06	1.5E-06	1.1E-05	4.4E-06	3.2E-04	9.0E-07	2.7E-07	9.6E-08	2.3E-06
KIDNEYS	1.7E-05	3.2E-07	4.3E-06	3.9E-06	3.5E-06	1.1E-06	3.4E-04	5.1E-06	1.0E-06	2.0E-06
LIVER	6.8E-06	2.2E-07	2.5E-06	2.3E-06	3.3E-06	3.1E-07	5.1E-06	7.9E-05	3.4E-06	1.5E-06
LUNGS	3.2E-06	3.0E-08	2.3E-06	2.7E-07	3.1E-07	9.5E-08	1.0E-06	3.6E-06	9.2E-05	2.0E-06
MARROW (RED)	4.8E-06	2.5E-06	1.9E-06	5.3E-06	4.6E-06	7.6E-06	4.8E-06	2.0E-06	2.5E-06	2.8E-06
OTH TISS (MUSC)	2.2E-06	2.5E-06	1.9E-06	2.1E-06	2.0E-06	2.3E-06	2.0E-06	1.5E-06	2.0E-06	4.4E-06
OVARIES	6.9E-07	9.5E-06	5.7E-07	1.5E-05	1.7E-05	3.0E-05	1.3E-06	5.2E-07	1.2E-07	2.9E-06
PANCREAS	1.2E-05	2.9E-07	2.7E-05	2.4E-06	2.8E-06	8.6E-07	8.5E-06	5.4E-06	3.3E-06	2.6E-06
SKIN	7.1E-07	7.1E-07	5.9E-07	5.3E-07	5.4E-07	6.3E-07	7.4E-07	6.5E-07	7.2E-07	1.1E-06
SPLEEN	8.7E-06	5.6E-07	1.4E-05	1.9E-06	1.7E-06	9.4E-07	1.3E-05	1.1E-06	3.2E-06	2.1E-06
TESTES	4.4E-08	5.9E-06	6.2E-08	3.8E-07	3.5E-07	2.3E-06	1.2E-07	8.4E-08	1.2E-08	1.6E-06
THYROID	1.6E-07	3.5E-09	1.2E-07	2.2E-08	2.4E-08	8.4E-09	6.5E-08	2.0E-07	1.1E-06	2.1E-06
UTERUS (NONGRVD)	1.6E-06	2.3E-05	9.2E-07	1.3E-05	6.4E-06	8.9E-06	1.1E-06	4.5E-07	1.0E-07	3.4E-06
TOTAL BODY	3.4E-06	2.9E-06	3.0E-06	3.7E-06	3.3E-06	3.4E-06	3.4E-06	3.5E-06	3.2E-06	2.9E-06

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123₁

S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
IODINE-123 HALF-LIFE 13.0 HOURS (CONTINUED)

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY
	OVARIES	PANCREAS	SKELETON		SKIN	SPLEEN	TESTES	THYROID			
			R MARROW	CORT BONE TRA						BONE	
ADRENALS	4.1E-07	1.2E-05	3.1E-06	1.5E-06	9.4E-07	8.7E-06	4.4E-08	1.6E-07	3.4E-06		
BLADDER WALL	9.2E-06	1.7E-07	1.1E-06	6.0E-07	6.6E-07	1.5E-07	6.2E-06	3.6E-09	3.5E-06		
BONE (TOTAL)	1.9E-06	1.7E-06	7.0E-06	2.0E-05	1.8E-05	1.5E-06	1.0E-06	1.2E-06	4.0E-06		
GI (STOM WALL)	9.4E-07	2.8E-05	1.2E-06	6.9E-07	7.1E-07	1.4E-05	4.8E-08	5.7E-08	3.5E-06		
GI (SI)	1.8E-05	2.2E-06	3.3E-06	9.3E-07	5.7E-07	1.7E-06	4.4E-07	1.3E-08	3.8E-06		
GI (ULI WALL)	1.8E-05	2.6E-06	2.7E-06	8.7E-07	5.9E-07	1.7E-06	3.8E-07	1.3E-08	3.7E-06		
GI (LLI WALL)	2.4E-05	6.6E-07	3.9E-06	1.3E-06	6.0E-07	7.3E-07	3.4E-06	6.8E-09	3.5E-06		
KIDNEYS	1.1E-06	8.5E-06	2.8E-06	1.1E-06	8.2E-07	1.3E-05	5.7E-08	4.2E-08	3.3E-06		
LIVER	6.5E-07	5.7E-06	1.1E-06	8.3E-07	7.1E-07	1.2E-06	4.1E-08	1.2E-07	3.4E-06		
LUNGS	7.7E-08	3.3E-06	1.5E-06	1.2E-06	8.0E-07	3.1E-06	1.0E-08	1.1E-06	3.1E-06		
MARROW (RED)	7.0E-06	3.3E-06	5.5E-05	7.8E-06	1.5E-05	2.1E-06	8.1E-07	1.3E-06	4.4E-06		
OTH TISS (MUSC)	2.9E-06	2.6E-06	1.6E-06	1.3E-06	1.1E-06	2.1E-06	1.6E-06	2.1E-06	2.9E-06		
OVARIES	7.2E-03	4.4E-07	3.6E-06	1.0E-06	5.0E-07	5.7E-07	0.0	7.9E-09	3.6E-06		
PANCREAS	5.8E-07	1.0E-03	2.0E-06	1.1E-06	6.0E-07	3.0E-05	6.9E-08	9.5E-08	3.8E-06		
SKIN	5.1E-07	5.0E-07	8.1E-07	9.0E-07	2.7E-05	6.3E-07	2.3E-06	1.1E-06	2.0E-06		
SPLEEN	6.0E-07	3.0E-05	1.1E-06	8.0E-07	7.1E-07	5.9E-04	3.0E-08	1.3E-07	3.5E-06		
TESTES	0.0	7.1E-08	4.8E-07	7.6E-07	1.5E-06	6.6E-08	2.5E-03	9.8E-10	2.6E-06		
THYROID	7.9E-09	1.5E-07	8.5E-07	1.0E-06	1.1E-06	1.1E-07	9.9E-10	4.0E-03	2.6E-06		
UTERUS (NONGRVD)	3.0E-05	6.6E-07	2.7E-06	7.2E-07	5.0E-07	4.7E-07	0.0	7.3E-09	3.9E-06		
TOTAL BODY	3.9E-06	3.9E-06	3.4E-06	3.2E-06	2.1E-06	3.5E-06	2.9E-06	2.9E-06	3.1E-06		

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
IODINE-125 HALF-LIFE 1.45E 03 HOURS

TARGET ORGANS	SOURCE ORGANS									
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT			KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)	
			CONTENTS							
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS					
ADRENALS	3.9E-03	3.9E-10	2.7E-07	3.6E-08	9.1E-08	4.8E-09	2.1E-06	5.6E-07	9.7E-07	
BLADDER WALL	4.1E-10	2.0E-04	3.2E-09	4.3E-07	2.9E-07	2.0E-06	1.4E-09	1.4E-10	7.8E-07	
BONE (TOTAL)	1.1E-06	9.0E-08	2.3E-07	4.1E-07	3.8E-07	1.0E-06	4.5E-07	8.0E-07	2.5E-07	
GI (STOM WALL)	4.1E-07	3.3E-09	1.5E-04	1.2E-06	1.8E-06	3.8E-07	3.2E-07	6.4E-07	6.1E-07	
GI (SI)	3.0E-08	3.8E-07	5.1E-07	8.9E-05	1.3E-05	6.6E-06	2.3E-07	4.0E-09	6.0E-07	
GI (ULI WALL)	3.7E-08	2.3E-07	1.3E-06	2.6E-05	1.5E-04	2.7E-06	6.5E-07	6.5E-09	7.0E-07	
GI (LLI WALL)	3.4E-09	2.6E-06	1.4E-07	5.7E-06	1.5E-06	2.3E-04	2.6E-09	6.9E-10	6.4E-07	
KIDNEYS	7.9E-06	2.6E-09	6.1E-07	5.2E-07	4.3E-07	6.8E-08	1.2E-06	9.3E-08	7.5E-07	
LIVER	2.1E-06	2.0E-09	3.0E-07	3.6E-07	5.7E-07	3.3E-09	1.2E-06	1.1E-06	4.5E-07	
LUNGS	7.9E-07	3.6E-11	6.1E-07	5.4E-09	6.4E-09	4.7E-10	1.3E-06	6.8E-05	8.8E-07	
MARROW (RED)	1.7E-06	3.0E-07	2.8E-07	1.6E-06	1.5E-06	4.1E-06	1.5E-06	9.3E-07	1.3E-06	
OTH TISS (MUSC)	9.7E-07	7.8E-07	6.1E-07	6.0E-07	5.5E-07	6.4E-07	4.5E-07	8.8E-07	2.6E-06	
OVARIES	3.2E-09	2.0E-06	2.5E-08	5.2E-06	6.2E-06	1.5E-05	1.5E-08	7.5E-10	1.1E-06	
PANCREAS	2.9E-06	1.1E-09	1.1E-05	1.9E-07	2.1E-07	4.3E-08	1.3E-06	6.6E-07	1.0E-06	
SKIN	1.6E-07	1.3E-07	1.2E-07	5.8E-08	7.2E-08	9.1E-08	1.3E-07	1.5E-07	5.0E-07	
SPLEEN	2.4E-06	7.8E-10	3.9E-06	2.0E-07	1.2E-07	4.7E-08	6.2E-08	9.9E-07	7.9E-07	
TESTES	2.7E-11	1.1E-06	1.6E-10	4.4E-09	4.5E-09	3.3E-07	9.8E-11	1.2E-11	4.5E-07	
THYROID	2.7E-10	3.6E-13	1.7E-10	8.4E-12	1.0E-11	2.0E-12	2.9E-10	6.1E-08	1.0E-06	
UTERUS (NONGRVD)	1.7E-09	8.5E-06	1.6E-08	4.3E-06	1.0E-06	1.7E-06	7.9E-09	5.7E-10	1.3E-06	
TOTAL BODY	1.8E-06	1.3E-06	1.4E-06	1.7E-06	1.5E-06	1.6E-06	1.8E-06	1.8E-06	1.5E-06	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/μCi-H) (CONTINUED)
IODINE-125 HALF-LIFE 1.45E 03 HOURS

TARGET ORGANS	SOURCE ORGANS										
	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	TOTAL BODY

			R MARROW	CORT BONE	TRA	BONE					
ADRENALS	3.2E-09	2.9E-06	6.3E-07	3.0E-07	3.0E-07	1.9E-07	2.6E-06	2.7E-11	2.7E-10	1.5E-06	
BLADDER WALL	2.0E-06	8.8E-10	1.2E-07	2.4E-08	2.4E-08	1.4E-07	9.0E-10	1.3E-06	3.8E-13	1.7E-06	
BONE (TOTAL)	5.9E-07	3.8E-07	4.2E-06	1.5E-05	1.5E-05	7.4E-07	4.5E-07	9.0E-08	2.3E-07	2.4E-06	
GI (STOM WALL)	4.2E-08	1.3E-05	9.9E-08	8.2E-08	8.2E-08	1.5E-07	4.0E-06	1.9E-10	5.2E-10	1.7E-06	
GI (SI)	7.7E-06	1.4E-07	5.2E-07	1.3E-07	1.3E-07	6.6E-08	1.2E-07	5.1E-09	8.4E-12	1.8E-06	
GI (ULI WALL)	9.2E-06	2.1E-07	4.7E-07	1.1E-07	1.1E-07	9.1E-08	1.6E-07	4.8E-09	1.0E-11	1.8E-06	
GI (LLI WALL)	1.3E-05	2.5E-08	1.1E-06	2.8E-07	2.8E-07	6.8E-08	3.6E-08	5.2E-07	1.6E-12	1.8E-06	
KIDNEYS	4.4E-08	1.9E-06	3.9E-07	1.4E-07	1.4E-07	2.2E-07	5.3E-06	1.2E-10	5.4E-11	1.6E-06	
LIVER	2.0E-08	1.2E-06	1.2E-07	1.3E-07	1.3E-07	1.4E-07	4.8E-08	8.2E-11	5.3E-10	1.7E-06	
LUNGS	2.6E-10	6.6E-07	2.9E-07	2.5E-07	2.5E-07	1.9E-07	9.8E-07	3.6E-12	9.4E-08	1.8E-06	
MARROW (RED)	2.5E-06	7.0E-07	4.4E-05	6.1E-06	6.8E-06	6.7E-07	4.7E-07	5.2E-08	2.1E-07	2.6E-06	
OTH TISS (MUSC)	1.1E-06	1.0E-06	3.2E-07	2.5E-07	2.5E-07	5.0E-07	7.9E-07	4.5E-07	1.0E-06	1.5E-06	
OVARIES	5.4E-03	8.5E-09	4.7E-07	2.9E-07	2.9E-07	5.8E-08	8.8E-09	0.0	1.4E-12	1.7E-06	
PANCREAS	7.4E-09	7.9E-04	1.7E-07	1.2E-07	1.2E-07	6.6E-08	1.5E-05	6.6E-11	2.4E-10	1.8E-06	
SKIN	3.8E-08	4.1E-08	1.7E-07	2.0E-07	2.0E-07	1.9E-05	1.2E-07	1.2E-06	4.3E-07	1.1E-06	
SPLEEN	9.0E-09	1.5E-05	1.2E-07	1.6E-07	1.6E-07	1.2E-07	4.4E-04	5.5E-11	3.0E-10	1.8E-06	
TESTES	0.0	6.6E-11	2.5E-08	6.1E-08	6.1E-08	8.1E-07	5.5E-11	1.8E-03	3.9E-14	1.4E-06	
THYROID	1.4E-12	2.4E-10	7.3E-08	1.4E-07	1.4E-07	4.1E-07	1.5E-10	3.9E-14	3.0E-03	1.5E-06	
UTERUS (NONGRVD)	1.1E-05	9.9E-09	2.3E-07	8.9E-08	8.9E-08	5.1E-08	4.4E-09	0.0	1.2E-12	1.7E-06	
TOTAL BODY	1.9E-06	1.9E-06	1.8E-06	1.8E-06	1.8E-06	1.2E-06	1.8E-06	1.6E-06	1.6E-06	1.7E-06	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
IODINE-131 HALF-LIFE 193. HOURS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	SOURCE ORGANS					LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			INTESTINAL TRACT			LLI CONTENTS				
			STOMACH CONTENTS	SI CONTENTS	ULI CONTENTS					
ADRENALS	3.1E-02	6.1E-07	6.3E-06	3.9E-06	2.7E-06	1.4E-06	3.2E-05	1.4E-05	6.9E-06	4.2E-06
BLADDER WALL	3.3E-07	1.2E-03	1.0E-06	8.5E-06	5.6E-06	1.7E-05	1.0E-06	7.4E-07	1.8E-07	5.0E-06
BONE (TOTAL)	4.1E-06	1.8E-06	1.8E-06	2.5E-06	2.2E-06	3.2E-06	3.0E-06	2.3E-06	3.0E-06	3.0E-06
GI (STOM WALL)	8.2E-06	8.8E-07	9.7E-04	9.9E-06	1.0E-05	5.0E-06	9.4E-06	5.4E-06	5.2E-06	3.9E-06
GI (SI)	2.6E-06	7.6E-06	7.3E-06	6.0E-04	4.6E-05	2.6E-05	7.8E-06	4.6E-06	6.9E-07	4.4E-06
GI (ULI WALL)	2.8E-06	6.6E-06	9.5E-06	6.5E-05	1.1E-03	1.2E-05	8.1E-06	7.0E-06	9.1E-07	4.6E-06
GI (LLI WALL)	8.4E-07	2.0E-05	3.6E-06	1.9E-05	8.4E-06	1.7E-03	2.4E-06	8.1E-07	2.6E-07	4.8E-06
KIDNEYS	3.2E-05	9.6E-07	9.5E-06	8.7E-06	7.7E-06	2.5E-06	1.5E-03	1.1E-05	2.7E-06	4.0E-06
LIVER	1.4E-05	7.2E-07	5.6E-06	5.1E-06	7.1E-06	9.0E-07	1.1E-05	3.0E-04	6.8E-06	3.1E-06
LUNGS	6.7E-06	1.1E-07	5.0E-06	8.5E-07	8.9E-07	2.8E-07	2.5E-06	6.8E-06	4.5E-04	3.7E-06
MARROW (RED)	7.5E-06	4.1E-06	3.2E-06	7.9E-06	6.9E-06	9.7E-06	7.6E-06	3.3E-06	3.8E-06	4.1E-06
OTH TISS (MUSC)	4.2E-06	5.0E-06	3.9E-06	4.4E-06	4.1E-06	4.8E-06	4.0E-06	3.1E-06	3.7E-06	1.9E-05
OVARIES	1.6E-06	1.9E-05	1.4E-06	2.7E-05	3.4E-05	5.0E-05	3.4E-06	9.6E-07	4.0E-07	5.6E-06
PANCREAS	2.4E-05	7.9E-07	5.0E-05	5.8E-06	5.8E-06	2.0E-06	1.8E-05	1.2E-05	7.5E-06	5.0E-06
SKIN	1.8E-06	1.7E-06	1.5E-06	1.4E-06	1.4E-06	1.6E-06	1.8E-06	1.6E-06	1.8E-06	2.4E-06
SPLEEN	1.8E-05	5.6E-07	2.7E-05	4.4E-06	3.7E-06	2.5E-06	2.4E-05	2.7E-06	6.2E-06	4.1E-06
TESTES	1.7E-07	1.4E-05	1.3E-07	1.0E-06	1.2E-06	5.7E-06	3.9E-07	3.0E-07	5.7E-08	3.4E-06
THYROID	5.2E-07	2.1E-08	3.9E-07	9.5E-08	1.0E-07	4.1E-08	2.4E-07	5.7E-07	3.0E-06	3.8E-06
UTERUS (NONGRVD)	3.4E-06	4.3E-05	2.4E-06	2.5E-05	1.3E-05	1.7E-05	2.6E-06	1.2E-06	2.7E-07	5.9E-06
TOTAL BODY	1.1E-05	5.9E-06	6.7E-06	1.0E-05	8.2E-06	8.8E-06	1.1E-05	1.1E-05	9.9E-06	9.8E-06

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
IODINE-131 HALF-LIFE 193. HOURS

SOURCE ORGANS

TARGET ORGANS	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	TOTAL BODY
			R	MARROW	CORT	BONE TRA					
ADRENALS	1.4E-06	2.3E-05	6.1E-06	4.3E-06	4.3E-06	2.1E-06	2.1E-06	1.8E-05	1.7E-07	5.2E-07	1.2E-05
BLADDER WALL	1.9E-05	5.0E-07	2.1E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	4.5E-07	1.4E-05	2.1E-08	1.1E-05
BONE (TOTAL)	2.9E-06	2.8E-06	2.5E-05	9.2E-05	6.5E-05	2.4E-06	2.4E-06	2.3E-06	2.0E-06	2.2E-06	1.0E-05
GI (STOM WALL)	2.3E-06	5.0E-05	2.9E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	2.7E-05	2.5E-07	2.6E-07	1.1E-05
GI (SI)	3.3E-05	5.1E-06	7.4E-06	2.2E-06	2.2E-06	1.5E-06	1.5E-06	3.9E-06	1.4E-06	3.4E-08	1.1E-05
GI (ULI WALL)	3.1E-05	6.1E-06	5.8E-06	2.0E-06	2.0E-06	1.5E-06	1.5E-06	3.7E-06	9.7E-07	3.5E-08	1.1E-05
GI (LLI WALL)	4.0E-05	1.5E-06	8.4E-06	2.8E-06	2.8E-06	1.6E-06	1.6E-06	1.9E-06	7.8E-06	3.4E-08	1.1E-05
KIDNEYS	3.0E-06	1.8E-05	6.5E-06	2.6E-06	2.6E-06	2.0E-06	2.0E-06	2.4E-05	2.4E-07	1.4E-07	1.1E-05
LIVER	1.7E-06	1.2E-05	2.8E-06	1.9E-06	1.9E-06	1.8E-06	1.8E-06	3.0E-06	1.4E-07	4.0E-07	1.1E-05
LUNGS	2.7E-07	6.8E-06	3.4E-06	2.8E-06	2.8E-06	1.9E-06	1.9E-06	6.2E-06	4.0E-08	2.9E-06	1.0E-05
MARROW (RED)	9.8E-06	5.4E-06	2.3E-04	1.0E-05	1.0E-05	2.3E-06	2.3E-06	3.5E-06	1.6E-06	2.4E-06	1.1E-05
OTH TISS (MUSC)	5.6E-06	5.0E-06	3.6E-06	3.0E-06	3.0E-06	2.4E-06	2.4E-06	4.1E-06	3.4E-06	3.8E-06	9.8E-06
OVARIES	3.9E-02	1.1E-06	8.4E-06	2.6E-06	2.6E-06	1.1E-06	1.1E-06	2.4E-06	0.0	4.1E-08	1.1E-05
PANCREAS	1.5E-06	4.7E-03	4.6E-06	2.8E-06	2.8E-06	1.6E-06	1.6E-06	5.4E-05	1.6E-07	2.4E-07	1.1E-05
SKIN	1.4E-06	1.4E-06	2.0E-06	2.3E-06	2.3E-06	1.6E-04	1.6E-04	1.6E-06	4.3E-06	2.4E-06	8.3E-06
SPLEEN	1.8E-06	5.4E-05	2.4E-06	2.2E-06	2.2E-06	1.8E-06	1.8E-06	2.6E-03	2.3E-07	3.6E-07	1.1E-05
TESTES	0.0	2.0E-07	1.1E-06	1.7E-06	1.7E-06	2.6E-06	2.6E-06	2.4E-07	1.3E-02	7.2E-09	1.0E-05
THYROID	4.1E-08	4.7E-07	2.3E-06	2.8E-06	2.8E-06	2.3E-06	2.3E-06	3.8E-07	7.2E-09	2.2E-02	9.7E-06
UTERUS (NONGRVD)	5.4E-05	1.8E-06	5.8E-06	1.7E-06	1.7E-06	1.4E-06	1.4E-06	1.2E-06	0.0	3.8E-08	1.1E-05
TOTAL BODY	1.2E-05	1.1E-05	1.0E-05	9.9E-06	9.9E-06	8.3E-06	8.3E-06	1.1E-05	9.8E-06	9.5E-06	9.9E-06

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
CESIUM-134 HALF-LIFE 1.80E 04 HOURS

TARGET ORGANS	SOURCE ORGANS										
	ADRENALS	BLADDER CONTENTS	INTESTINAL TRACT				KIDNEYS	LIVER	LUNGS	OTHER TISSUE (MUSCLE)	
			STOMACH		ULI						LLI
			CONTENTS	CONTENTS	CONTENTS	CONTENTS					
	3.1E-02	2.7E-06	2.4E-05	1.4E-05	1.2E-05	5.5E-06	1.4E-04	5.4E-05	2.7E-05	1.7E-05	
ADRENALS											
BLADDER WALL	1.9E-06	1.7E-03	5.3E-06	3.2E-05	2.2E-05	6.0E-05	4.7E-06	3.1E-06	9.2E-07	2.0E-05	
BONE (TOTAL)	1.5E-05	6.4E-06	6.6E-06	8.7E-06	7.8E-06	1.1E-05	1.1E-05	8.0E-06	1.1E-05	1.2E-05	
GI (STOM WALL)	3.3E-05	4.7E-06	1.3E-03	3.8E-05	4.0E-05	1.9E-05	3.7E-05	2.1E-05	2.1E-05	1.6E-05	
GI (SI)	1.1E-05	2.9E-05	2.9E-05	7.9E-04	1.8E-04	9.8E-05	3.1E-05	1.8E-05	3.3E-06	1.7E-05	
GI (ULI WALL)	1.2E-05	2.4E-05	3.5E-05	2.5E-04	1.3E-03	4.5E-05	3.2E-05	2.8E-05	4.5E-06	1.8E-05	
GI (LLI WALL)	3.5E-06	7.6E-05	1.5E-05	7.5E-05	3.5E-05	1.9E-03	9.8E-06	3.4E-06	9.5E-07	1.9E-05	
KIDNEYS	1.3E-04	4.2E-06	3.6E-05	3.5E-05	3.1E-05	9.7E-06	2.0E-03	4.1E-05	1.1E-05	1.6E-05	
LIVER	5.3E-05	3.3E-06	2.2E-05	2.0E-05	2.7E-05	4.1E-06	4.3E-05	4.8E-04	2.6E-05	1.2E-05	
LUNGS	2.6E-05	7.2E-07	2.0E-05	3.8E-06	4.2E-06	1.4E-06	1.1E-05	2.7E-05	5.2E-04	1.5E-05	
MARROW (RED)	2.7E-05	1.3E-05	1.1E-05	2.7E-05	2.3E-05	3.4E-05	2.7E-05	1.2E-05	1.4E-05	1.5E-05	
OTH TISS (MUSC)	1.7E-05	2.0E-05	1.6E-05	1.7E-05	1.6E-05	1.9E-05	1.6E-05	1.2E-05	1.5E-05	3.0E-05	
OVARIES	6.0E-06	6.1E-05	1.0E-05	1.0E-04	1.2E-04	1.8E-04	1.5E-05	4.9E-06	1.8E-06	2.2E-05	
PANCREAS	9.4E-05	3.1E-06	1.9E-04	2.3E-05	2.1E-05	8.3E-06	7.4E-05	5.0E-05	2.8E-05	2.0E-05	
SKIN	7.9E-06	7.6E-06	6.8E-06	6.2E-06	6.3E-06	6.8E-06	7.5E-06	6.9E-06	7.7E-06	1.0E-05	
SPLEEN	6.9E-05	2.7E-06	1.0E-04	1.7E-05	1.4E-05	1.1E-05	9.2E-05	1.2E-05	2.4E-05	1.6E-05	
TESTES	8.9E-07	5.5E-05	9.7E-07	4.9E-06	6.0E-06	2.0E-05	1.8E-06	1.9E-06	3.3E-07	1.4E-05	
THYROID	2.3E-06	1.4E-07	1.8E-06	5.3E-07	5.6E-07	2.5E-07	1.2E-06	2.2E-06	1.4E-05	1.5E-05	
UTERUS (NONGRVD)	4.8E-06	1.6E-04	1.0E-05	9.5E-05	5.1E-05	6.2E-05	9.4E-06	4.8E-06	1.2E-06	2.5E-05	
TOTAL BODY	2.4E-05	2.1E-05	2.1E-05	2.6E-05	2.4E-05	2.4E-05	2.4E-05	2.4E-05	2.1E-05	2.1E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
CESIUM-134 HALF-LIFE 1.80E 04 HOURS

(CONTINUED)

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY
	OVARIES	PANCREAS	SKELETON			SKIN	SPLEEN	TESTES	THYROID		
			R MARROW	CORT	BONE TRA						
										BONE	
ADRENALS	6.6E-06	8.6E-05	2.5E-05	2.0E-05	2.0E-05	8.2E-06	7.2E-05	8.9E-07	2.3E-06	2.9E-05	
BLADDER WALL	7.5E-05	1.9E-06	9.8E-06	6.4E-06	6.4E-06	7.8E-06	2.6E-06	5.7E-05	1.4E-07	2.6E-05	
BONE (TOTAL)	1.0E-05	1.0E-05	4.2E-05	1.1E-04	8.6E-05	9.6E-06	8.5E-06	7.3E-06	8.3E-06	2.2E-05	
GI (STOM WALL)	9.1E-06	1.9E-04	1.2E-05	6.3E-06	6.3E-06	7.4E-06	1.1E-04	1.2E-06	1.5E-06	2.4E-05	
GI (SI)	1.3E-04	2.0E-05	2.9E-05	9.2E-06	9.2E-06	6.4E-06	1.6E-05	6.0E-06	2.5E-07	2.7E-05	
GI (OLI WALL)	1.2E-04	2.4E-05	2.2E-05	8.2E-06	8.2E-06	6.9E-06	1.6E-05	4.0E-06	2.9E-07	2.6E-05	
GI (LLI WALL)	1.5E-04	6.1E-06	3.4E-05	1.1E-05	1.1E-05	7.1E-06	7.5E-06	2.9E-05	2.2E-07	2.7E-05	
KIDNEYS	1.3E-05	6.8E-05	2.6E-05	1.2E-05	1.2E-05	8.6E-06	9.2E-05	1.4E-06	9.2E-07	2.5E-05	
LIVER	7.1E-06	4.5E-05	1.1E-05	8.0E-06	8.0E-06	7.6E-06	1.2E-05	8.5E-07	2.0E-06	2.5E-05	
LUNGS	1.5E-06	2.6E-05	1.3E-05	1.1E-05	1.1E-05	7.8E-06	2.4E-05	2.4E-07	1.2E-05	2.2E-05	
MARROW (RED)	3.3E-05	1.9E-05	2.6E-04	3.6E-05	1.2E-04	8.9E-06	1.3E-05	5.8E-06	9.1E-06	2.3E-05	
OTH TISS (MUSC)	2.2E-05	2.0E-05	1.5E-05	1.2E-05	1.2E-05	1.0E-05	1.6E-05	1.4E-05	1.5E-05	2.1E-05	
OVARIES	4.1E-02	7.3E-06	3.6E-05	1.2E-05	1.2E-05	4.9E-06	9.4E-06	0.0	2.6E-07	2.2E-05	
PANCREAS	8.0E-06	6.0E-03	1.6E-05	1.1E-05	1.1E-05	6.1E-06	2.1E-04	7.6E-07	8.3E-07	2.4E-05	
SKIN	6.1E-06	6.0E-06	8.4E-06	9.7E-06	9.7E-06	1.6E-04	7.2E-06	1.8E-05	1.0E-05	1.6E-05	
SPLEEN	7.4E-06	2.1E-04	1.0E-05	9.6E-06	9.6E-06	8.0E-06	3.5E-03	1.2E-06	1.8E-06	2.5E-05	
TESTES	0.0	1.0E-06	4.8E-06	6.9E-06	6.9E-06	9.8E-06	1.2E-06	1.4E-02	5.8E-08	2.5E-05	
THYROID	2.6E-07	1.4E-06	1.0E-05	9.8E-06	9.8E-06	8.9E-06	1.8E-06	5.8E-08	2.4E-02	2.2E-05	
UTERUS (NONGRVD)	1.9E-04	6.9E-06	2.0E-05	8.1E-06	8.1E-06	7.3E-06	5.9E-06	0.0	2.4E-07	2.8E-05	
TOTAL BODY	2.7E-05	2.7E-05	2.3E-05	2.1E-05	2.1E-05	1.6E-05	2.4E-05	2.1E-05	2.0E-05	2.1E-05	

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S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H)
THALLIUM-201 HALF-LIFE 73.5 HOURS

TARGET ORGANS	ADRENALS	BLADDER CONTENTS	SOURCE ORGANS				LIVER	LUNGS	OTHER TISSUE (MUSCLE)
			STOMACH CONTENTS	SI CONTENTS	INTESTINAL TRACT CONTENTS	ULI CONTENTS			
ADRENALS	7.0E-03	6.7E-08	2.1E-06	5.6E-07	6.2E-07	1.9E-07	9.5E-06	2.0E-06	1.2E-06
BLADDER WALL	6.5E-08	2.9E-04	1.5E-07	1.8E-06	1.5E-06	5.4E-06	1.3E-07	1.7E-08	1.4E-06
BONE (TOTAL)	2.1E-06	7.3E-07	8.1E-07	1.2E-06	1.1E-06	1.7E-06	1.4E-06	1.6E-06	6.9E-07
GI (STOM WALL)	2.1E-06	1.4E-07	2.2E-04	2.9E-06	3.1E-06	1.3E-06	2.7E-06	1.5E-06	1.1E-06
GI (SI)	5.0E-07	2.2E-06	2.0E-06	1.4E-04	1.5E-05	8.0E-06	2.1E-06	1.0E-07	1.2E-06
GI (ULI WALL)	5.9E-07	1.5E-06	2.9E-06	2.5E-05	2.4E-04	3.5E-06	2.1E-06	1.3E-07	1.3E-06
GI (LLI WALL)	1.2E-07	6.3E-06	8.4E-07	6.6E-06	2.5E-06	3.7E-04	4.1E-07	3.0E-08	1.3E-06
KIDNEYS	9.1E-06	1.4E-07	2.7E-06	2.3E-06	2.1E-06	5.3E-07	3.7E-04	5.7E-07	1.1E-06
LIVER	4.0E-06	8.4E-08	1.5E-06	1.3E-06	1.9E-06	1.3E-07	3.1E-06	2.0E-06	8.4E-07
LUNGS	1.9E-06	1.0E-08	1.4E-06	1.2E-07	1.5E-07	3.9E-08	6.0E-07	1.1E-04	1.1E-06
MARROW (RED)	3.7E-06	1.9E-06	1.3E-06	4.2E-06	3.6E-06	5.8E-06	3.8E-06	1.9E-06	2.1E-06
OTH TISS (MUSC)	1.2E-06	1.4E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.1E-06	1.1E-06	4.4E-06
OVARIES	3.0E-07	5.7E-06	3.9E-07	9.5E-06	9.2E-06	1.5E-05	7.2E-07	5.3E-08	1.6E-06
PANCREAS	7.4E-06	1.1E-07	1.6E-05	1.4E-06	1.6E-06	4.4E-07	5.2E-06	2.0E-06	1.5E-06
SKIN	3.6E-07	3.9E-07	3.2E-07	2.8E-07	2.9E-07	3.4E-07	3.8E-07	3.8E-07	5.9E-07
SPLEEN	5.2E-06	3.4E-07	8.7E-06	1.0E-06	1.1E-06	5.7E-07	7.6E-06	1.8E-06	1.2E-06
TESTES	1.2E-08	4.0E-06	2.3E-08	1.6E-07	1.4E-07	1.3E-06	3.6E-08	3.0E-09	8.7E-07
THYROID	5.3E-08	6.5E-10	3.6E-08	5.3E-09	5.9E-09	1.8E-09	1.9E-08	5.6E-07	1.1E-06
UTERUS (NONGRVD)	2.9E-07	1.4E-05	4.1E-07	8.4E-06	4.4E-06	5.7E-06	5.0E-07	4.5E-08	2.0E-06
TOTAL BODY	2.8E-06	1.8E-06	2.0E-06	2.8E-06	2.3E-06	2.5E-06	2.7E-06	2.7E-06	2.4E-06

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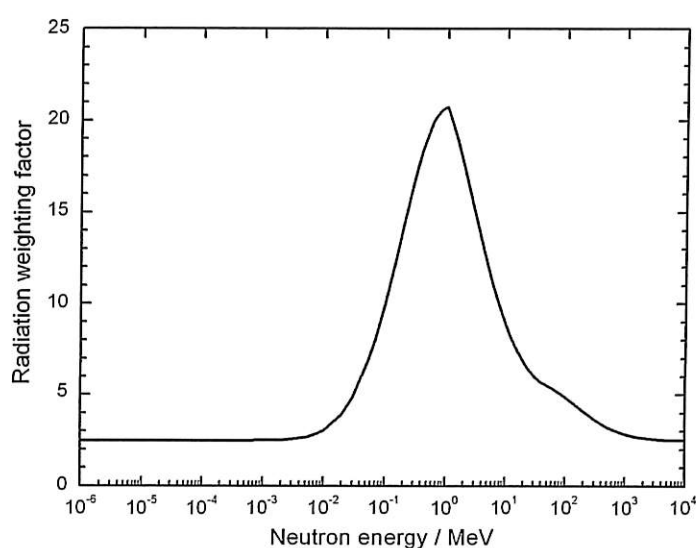
S, ABSORBED DOSE PER UNIT CUMULATED ACTIVITY, (RAD/UCI-H) (CONTINUED)
THALLIUM-201 HALF-LIFE 73.5 HOURS

TARGET ORGANS	SOURCE ORGANS										TOTAL BODY
	OVARIES	PANCREAS	SKELETON				SKIN	SPLEEN	TESTES	THYROID	
			R	MARROW	CORT	BONE					
ADRENALS	1.8E-07	7.4E-06	1.4E-06	8.8E-07	8.8E-07	8.8E-07	4.2E-07	5.2E-06	1.2E-08	5.3E-08	2.5E-06
BLADDER WALL	6.0E-06	6.8E-08	6.9E-07	3.3E-07	3.3E-07	3.3E-07	3.4E-07	5.8E-08	3.9E-06	6.6E-10	2.8E-06
BONE (TOTAL)	1.5E-06	1.4E-06	5.2E-06	2.3E-05	2.1E-05	2.1E-05	1.1E-06	1.1E-06	7.3E-07	9.2E-07	3.4E-06
GI (STOM WALL)	5.1E-07	1.6E-05	6.2E-07	3.5E-07	3.5E-07	3.5E-07	4.2E-07	8.7E-06	1.6E-08	3.4E-08	2.7E-06
GI (SI)	1.1E-05	1.2E-06	1.9E-06	5.3E-07	5.3E-07	5.3E-07	3.1E-07	9.7E-07	2.0E-07	3.2E-09	2.9E-06
GI (ULI WALL)	9.5E-06	1.5E-06	1.5E-06	4.7E-07	4.7E-07	4.7E-07	3.4E-07	1.1E-06	1.7E-07	4.8E-09	2.9E-06
GI (LLI WALL)	1.3E-05	3.6E-07	2.2E-06	7.4E-07	7.4E-07	7.4E-07	3.2E-07	4.0E-07	2.1E-06	1.5E-09	2.9E-06
KIDNEYS	5.7E-07	5.3E-06	1.6E-06	5.8E-07	5.8E-07	5.8E-07	4.5E-07	7.9E-06	1.7E-08	1.5E-08	2.7E-06
LIVER	3.1E-07	3.5E-06	6.1E-07	4.5E-07	4.5E-07	4.5E-07	3.9E-07	6.2E-07	1.3E-08	5.0E-08	2.7E-06
LUNGS	2.9E-08	2.0E-06	8.4E-07	7.2E-07	7.2E-07	7.2E-07	4.6E-07	1.9E-06	2.1E-09	6.8E-07	2.6E-06
MARROW (RED)	5.9E-06	2.6E-06	6.7E-05	5.6E-06	5.6E-06	1.2E-05	9.9E-07	1.5E-06	5.5E-07	9.7E-07	3.9E-06
OTH TISS (MUSC)	1.6E-06	1.5E-06	8.5E-07	6.9E-07	6.9E-07	6.9E-07	5.9E-07	1.2E-06	8.7E-07	1.1E-06	2.4E-06
OVARIES	9.3E-03	2.7E-07	2.7E-06	5.3E-07	5.3E-07	5.3E-07	2.8E-07	2.3E-07	0.0	1.6E-09	2.8E-06
PANCREAS	2.7E-07	1.2E-03	1.2E-06	5.7E-07	5.7E-07	5.7E-07	2.7E-07	1.7E-05	2.1E-08	3.1E-08	3.0E-06
SKIN	2.6E-07	2.7E-07	3.9E-07	4.5E-07	4.5E-07	4.5E-07	3.6E-05	3.4E-07	1.1E-06	5.7E-07	1.9E-06
SPLEEN	2.7E-07	1.8E-05	6.3E-07	4.5E-07	4.5E-07	4.5E-07	4.1E-07	6.4E-04	8.2E-09	4.9E-08	2.7E-06
TESTES	0.0	2.2E-08	2.7E-07	4.0E-07	4.0E-07	4.0E-07	7.3E-07	1.9E-08	3.0E-03	1.5E-10	2.3E-06
THYROID	1.6E-09	4.9E-08	4.3E-07	5.3E-07	5.3E-07	5.3E-07	5.4E-07	3.5E-08	1.5E-10	5.1E-03	2.4E-06
UTERUS (NONGRVD)	1.8E-05	2.8E-07	1.5E-06	3.5E-07	3.5E-07	3.5E-07	3.1E-07	2.2E-07	0.0	1.5E-09	3.0E-06
TOTAL BODY	3.1E-06	3.1E-06	2.8E-06	2.7E-06	2.7E-06	2.7E-06	2.0E-06	2.8E-06	2.4E-06	2.4E-06	2.6E-06

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Table 2. Recommended radiation weighting factors.

Radiation type	Radiation weighting factor, w_R
Photons	1
Electrons and muons	1
Protons and charged pions	2
Alpha particles, fission fragments, heavy ions	20
Neutrons	A continuous function of neutron energy (see Fig. 1 and Eq. 4.3)

Fig. 1. Radiation weighting factor, w_R , for neutrons versus neutron energy.

The following continuous function in neutron energy, E_n (MeV), is recommended for the calculation of radiation weighting factors for neutrons:

$$w_R = \begin{cases} 2.5 + 18.2e^{-[\ln(E_n)]^2/6}, & E_n < 1 \text{ MeV} \\ 5.0 + 17.0e^{-[\ln(2E_n)]^2/6}, & 1 \text{ MeV} \leq E_n \leq 50 \text{ MeV} \\ 2.5 + 3.25e^{-[\ln(0.04E_n)]^2/6}, & E_n > 50 \text{ MeV} \end{cases} \quad (4.3)$$

Table 3. Recommended tissue weighting factors.

Tissue	w_T	$\sum w_T$
Bone-marrow (red), Colon, Lung, Stomach, Breast, Remainder tissues*	0.12	0.72
Gonads	0.08	0.08
Bladder, Oesophagus, Liver, Thyroid	0.04	0.16
Bone surface, Brain, Salivary glands, Skin	0.01	0.04
Total		1.00

* Remainder tissues: Adrenals, Extrathoracic (ET) region, Gall bladder, Heart, Kidneys, Lymphatic nodes, Muscle, Oral mucosa, Pancreas, Prostate (♂), Small intestine, Spleen, Thy-mus, Uterus/cervix (♀).

Nuklid	Kemisk symbol	Halve- ringstid	Typ av sönderfall	Maximal partikel energi *	Dominerade gammaenergier och intensiteter	Keramarats konstant Γ (* *)	ALI			
			(%)	(MeV)	(%)	(MeV)	(%)	(MBq)		
Tritium	H	12.3 år	β−	0,0186				3000		
Kol-14	C	5730 år	β−	0,156				900		
Kväve-16	N	7.14 s	β−	10,4 4,27	26 74	6,13 7,11	69 5	0,4		
Fluor -18	F	110 min	β+ 97 EC 3	0,635		0,511	194	0,16	2000	
Natrium-22	Na	2,62 år	β+ 91 EC 9	0,545		0,511 1,275	180 100	0,51	20	
Natrium-24	Na	15 tim	β−	1,38		1,369 2,754	100 100	0,49	100	
Fosfor-32	P	14,3 d	β−	1,71					10	
Svavel-35	S	87,9 d	β−	0,167					80	
Kalium-40	K	1,26 E9 år	β− 89 EC 11	1,314		1,46	11	0,02		
Argon-41	Ar	1,83 tim	β−	1,198		1,293	99	0,18		
Kalcium-45	Ca	165 d	β−	0,252					30	
Kalcium-47	Ca	4,53 d	β−	1,98 0,67	18 82	0,49 0,815 1,308	489 808 1297	5 5 74	6,7 6,9 74,9	0,15 30
↓										
Skandium-47	Sc	3,43 d	β−	0,6		0,16	73	0,04		
Krom-51	Cr	27,8 d	EC			0,32	9	0,005	700	
Mangan-54	Mn	303 d	EC			0,835	100	0,13	30	
Mangan-56	Mn	2,6 tim	β−	2,85		0,847 1,811 2,11	99 29 15	0,23	200	
Järn-55	Fe	2,60 år	EC			0,006			70	
Järn-59	Fe	45,6 d	β−	0,475		1,095 1,292	56 44	0,17	10	
Kobolt-57	Co	270 d	EC			0,014 0,122 0,136	9 87 11	0,02	20	

* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

** Enheten för specifika keramaratskonstanter ($\mu\text{Gy} \cdot \text{m}^2/\text{MBq/h}$)

Nuklid	Kemisk symbol	Halve-ringstid	Typ av sönderfall	Maximal partikel energi *	Dominerade gammaenergier och intensiteter	Keramarats konstant Γ (**)	ALI
			(%)	(MeV)	(%)	(MeV)	(MBq)
Kobolt-58	Co	71,3 d	β^+ 15 EC 85	0,474	0,511 30 0,81 99	0,15	30
Kobolt-60	Co	5,26 år	β^-	0,314	1,173 100 1,332 100	0,35	1
Koppar-64	Cu	12,8 tim	β^+ 19 EC 43 β^- 38	0,656 0,573	0,511 38	0,03	400
Zink-65	Zn	245 d	β^+ 1,7 EC 98,3		0,511 3,4 1,115 48	0,08 50,8	10
Selen-75	Se	120 d	EC		0,121 17 0,136 57 0,265 60 0,28 25 0,401 12	0,06	20
Brom-82	Br	35,34 tim	β^-	0,444	0,554 66 0,619 41 0,698 27 0,777 83 0,828 25 1,044 29 1,317 26 1,475 17	0,39	100
Krypton-85	Kr	10,76 år	β^-	0,67	0,514 0,41		
Strontium-85	Sr	64,0 d	EC		0,514 100	0,09	60
Yttrium-87 ↓	Y	80 tim	EC 99		0,483		
Strontium-87m	Sr	2,83 tim	IT		0,388 80	0,17	10
Strontium-89	Sr	52,7 d	β^-	1,463			5
Strontium-90 ↓	Sr	27,7 år	β^-	0,546			0,1
Yttrium-90	Y	64,0 tim	β^-	2,27			20
Zirkonium-95 ↓	Zr	65,5 d	β^-	0,396	0,724 49 0,756 49		10
Niob-95	Nb	35 d	β^-	0,16	0,763 100	0,23	40
Molybden-99 ↓	Mo	66,7 tim	β^-	1,23	0,181 7 0,74 12	0,02	40

* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

** Enheten för specifika keramaratskonstanten ($\mu\text{Gy}^* \text{ m}^2/\text{MBq/h}$)

Nuklid	Kemisk symbol	Halve- ringstid	Typ av sönderfall	Maximal partikel energi *	Dominerade gammaenergier och intensiteter	Kermarks konstant Γ (**)	ALI
			(%)	(MeV)	(%)	(MeV)	(MBq)
↓ Teknetium-99m	Tc	6,05 tim	IT			0,14 90	0,02 3000
Teknetium-99	Tc	2,12 E5 år	β^-	0,292			20
Rutenium-103	Ru	39,5 d	β^-	0,21	0,497 0,61	88 6	0,08 30
Rutenium-106	Ru	368 d	β^-	0,039			
↓ Rhodium-106	Rh	30 s	β^-	3,54	0,512 0,622	21 11	0,46 0,4
Silver-110m	Ag	255 d	β^- 98,7 IT 1,3	0,53 0,087	0,658 0,68 0,706 0,764 0,818 0,885 0,937 1,384 1,505	96 16 19 23 8 71 32 21 11	0,41 5
Tenn-113	Sn	115 d	EC				20
↓ Indium-113m	In	100 min	IT		0,393	64	0,04 6000
Antimon-125	Sb	2,71 år	β^-	0,61	0,176 0,427 0,463 0,599 1,634	6 31 10 24 11	0,06 20
Jod-125	I	60,2 d	EC		0,028 0,035		0,02 1
Jod-129	I	1,7 E7 år	β^-	0,15	0,04	9	0,2
Jod-131	I	8,05 d	β^-	0,606	0,284 0,364 0,637	5,4 82 6,8	0,06 1
Tellur-132	Te	78 tim	β^-	0,22	0,053 0,23	17 90	0,03 1
Xenon-133	Xe	5,3 d	β^-	0,346	0,081	37	0,004
Cesium-134	Cs	2,05 år	β^-	0,662	0,57 0,605 0,796	23 98 99	0,24 3

* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

** Enheten för specifika kermarkskonstanten ($\mu\text{Gy} \cdot \text{m}^2/\text{MBq/h}$)

Nuklid	Kemisk symbol	Halveringstid	Typ av sönderfall	Maximal energi *	partikel	Dominerade gammaenergier och intensiteter	Kermarkts konstant Γ (**)	ALI
			(%)	(MeV)	(%)	(MeV) (%)		(MBq)
Cesium-137	Cs	30,0 år	β^-	0,514				
↓				1,176	7			
Barium-137m	Ba	2,6 min	IT			0,662	89	0,09
								4
Barium-140	Ba	12,8 d	β^-	1,02		0,03	11	
↓						0,163	6	
						0,605	6	
Lantan-140	La	40,22 d	β^-	2,175	6	0,329	20	0,34
				1,69	15	0,487	40	20
				1,36		0,815	19	
						0,923	10	
						1,596	96	
Cerium-144	Ce	284 d	β^-	0,31		0,08	2	
↓						0,134	11	0,5
Praseodym-144	Pr	17,3 min	β^-	2,99		0,695	1,5	0,04
						1,487	0,3	300
						2,186	0,7	
Prometium-147	Pm	2,6 år	β^-	0,224				0,12
								5
Tantal-182	Ta	115 d	β^-	0,522		0,068	42	0,19
						0,1	14	5
						0,152	7	
						0,222	8	
						1,122	34	
						1,189	16	
						1,222	27	
						1,231	13	
Kvicksilver-197	Hg	65 tim	EC			0,077	18	0,002
						0,191	2	200
Guld 198	Au	2,7 d	β^-	0,962		0,412	95	0,06
								40
Kvicksilver-203	Hg	46,9 d	β^-	0,214		0,279	77	0,04
								20
Bly-210	Pb (Ra D)	20,4 år	β^-	0,061		0,047	4	0,009
↓								
Vismut-210	Bi (Ra E)	5 d	β^-	1,16				
								1
↓								
Polonium-210	Po (Ra F)	136 d	α	5,305		0,803	0,001	0,02

* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

** Enheten för specifika kermarktskonstanten $(\mu\text{Gy} \cdot \text{m}^2/\text{MBq/h})$

Nuklid	Kemisk symbol	Halveringstid	Typ av sönderfall	Maximal energi *	partikel (%)	Dominerade gammaenergier och intensiteter (MeV) (%)	Keramarats konstant Γ (**)	ALI (MBq)
Vismut-214	Bi (Ra C)	19,7 min	β^- 99 α 0,21	3,26 5,5		0,609 47 0,769 5 1,12 17 1,239 6 1,764 17 2,204 5 mfl	0,2	30
Radon-222	Rn	3,82 d	α	5,49		0,51 0,07		
Radon 220	Rn	55 s	α	6,29		0,55 0,07		
Radium-226	Ra	1602 år	α	4,78 4,6	94 6	0,186 och strålning från sönderfalls produkter	4 0,24	0,01
Radium-228	Ra	6,7 år	β^-	0,05		strålning från sönderfalls produkter	0,14	0,04
Torium-232	Th	1,4 E10 år	α	4,01 3,95	76 24	strålning från sönderfalls produkter		0,00004
Uran-233	U	1,6 E5 år	α	4,82 4,78	83 15	0,029 20 0,042 100 0,055 20 0,097 30 mfl		0,001
Uran-235	U	7,1 E8 år	α	4,58 4,4 4,37	8 57 18	0,143 11 0,185 54 0,204 5		0,002
Uran-238	U	4,5 10 ⁹ år	α	4,2 4,15	75 25			0,002
Neptunium-239	Np	2,35 d	β^-	0,71 0,48	11 89	0,106 23 0,209 4 0,228 12 0,278 14	0,001	40
↓								
Plutonium-239	Pu	24400 år	α	5,16 5,11	88 11	0,039 0,007 0,052 0,02 0,129 0,005 0,375 0,001 0,429 0,001		0,0002

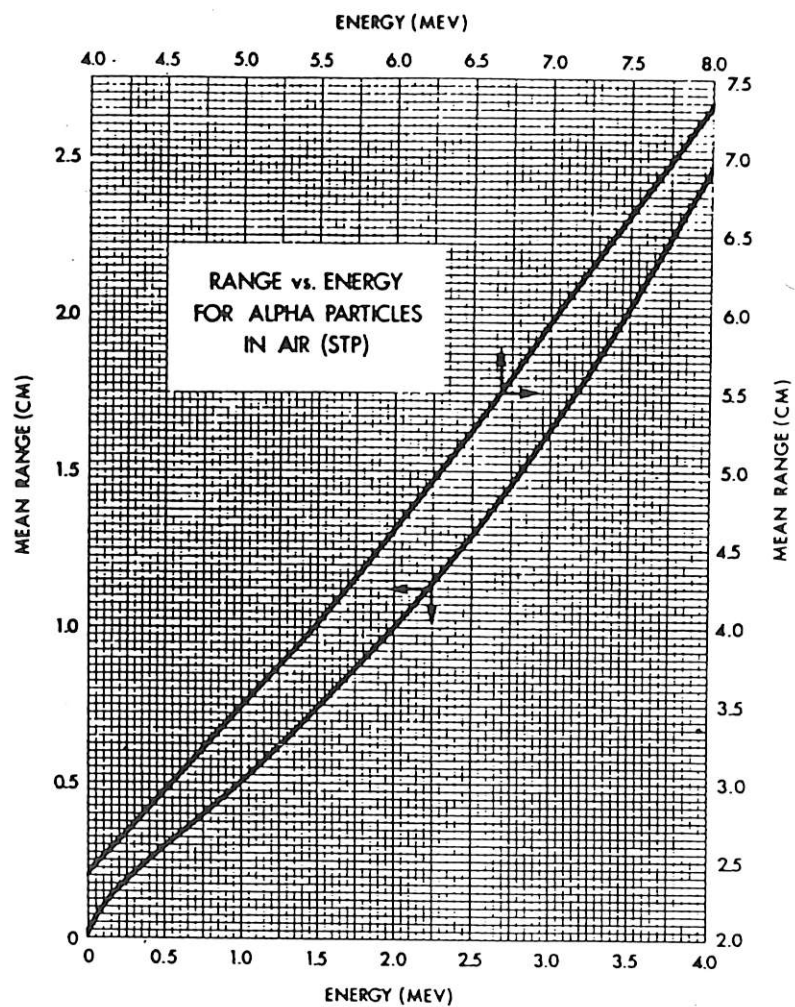
* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

** Enheten för specifika keramaratskonstanten ($\mu\text{Gy} \cdot \text{m}^2/\text{MBq/h}$)

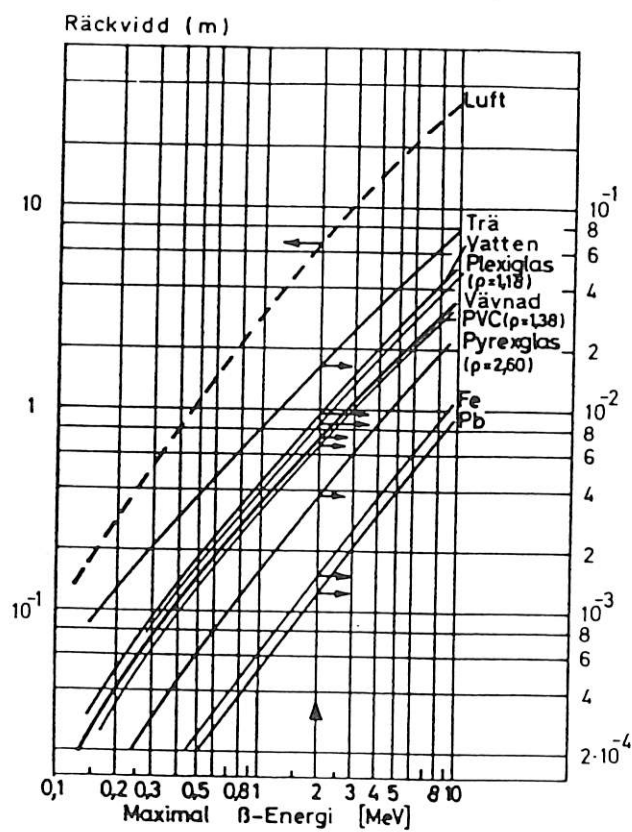
Nuklid	Kemisk symbol	Halve- ringtid	Typ av sönderfall	Maximal partikel energi *		Dominerade gammaenergier och intensiteter		Kemmarats konstant Γ (**)	ALI
				(%)	(MeV)	(%)	(MeV)		(MBq)
Plutonium-238	Pu	86,4 år	α		5,5 5,46	72 28	0,1 9 E-3		0,0002
Plutonium-240	Pu	6580 år	α		5,17 5,12	76 24	0,65 2 E-5		0,0002
Plutonium-241	Pu	13,2 år	$\beta-$ α		0,021 4,9 2 E-3		0,145 1,6 E-4		0,0001
↓ Americium-241	Am	458 år	α		5,49 5,44	85 13	0,06 36	0,003	0,0002
Curium-242	Cm	163 d	α		6,12 6,07	74 26	0,044 0,041		0,0003
Californium-252	Cf	2,65 år	α		6,12 6,08	82 15			0,001
		85 år	fission						

* Medelenergin för betapartiklarna $E(\text{medel}) = E(\text{max})/3$

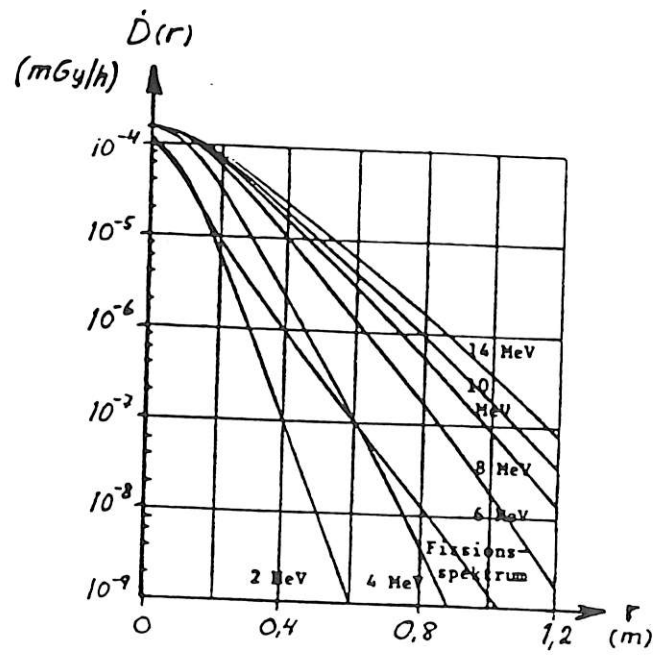
** Enheten för specifika kemmaratskonstanten ($\mu\text{Gy} \cdot \text{m}^2/\text{MBq/h}$)



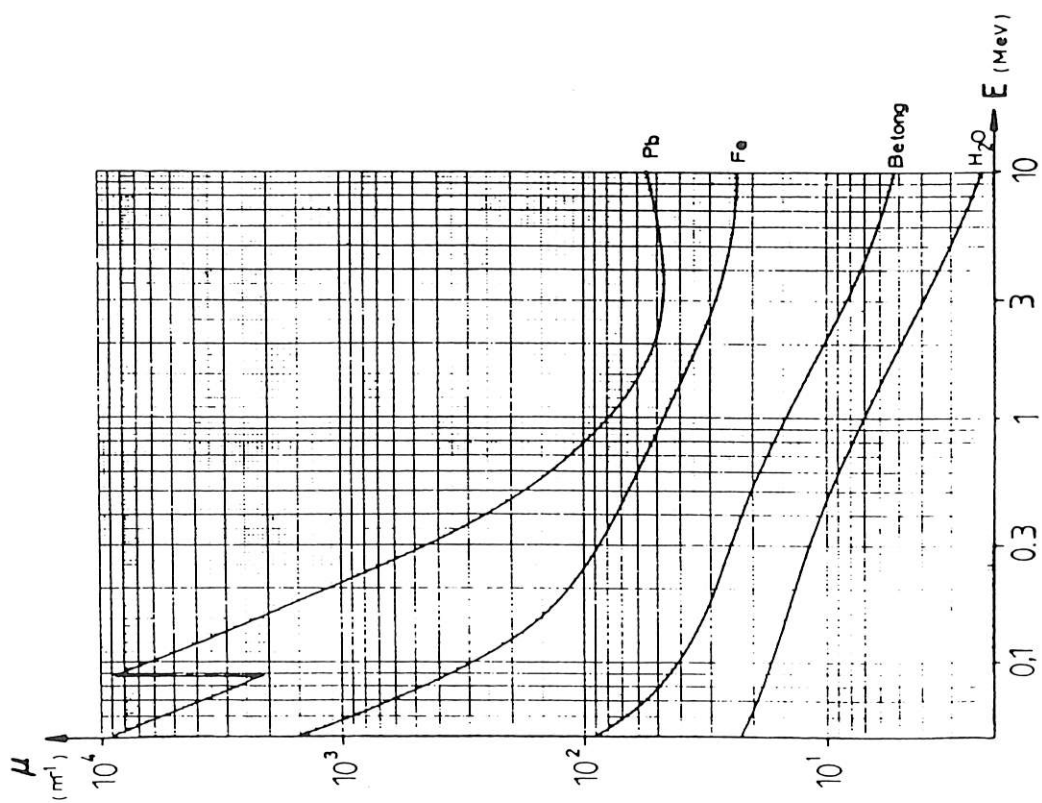
Figur 2.2 Räckvidden i luft för alfapartiklar. Från Radiological Health Handbook, US Dept of Health, Education and Welfare (1970)



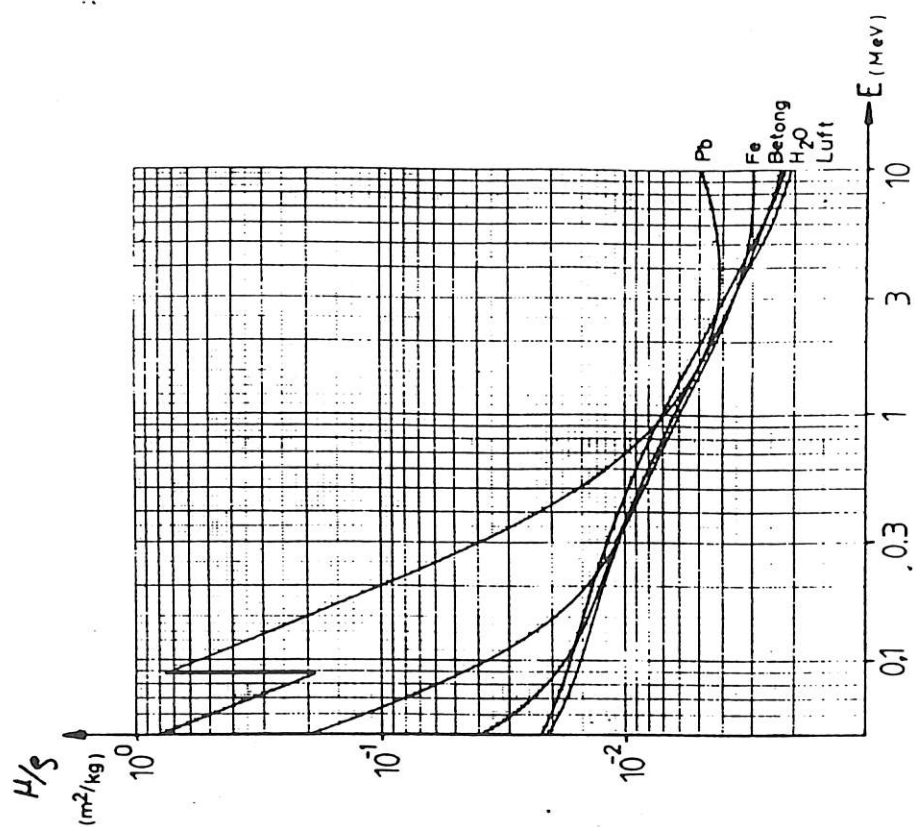
Figur 2.4 Räckvidden i några olika material för betastrålning. Från Dimitrijević, Praktische Berechnung der Abschirmung von radioaktiver und Röntgen-Strahlung, Verlag Chemie (1972)



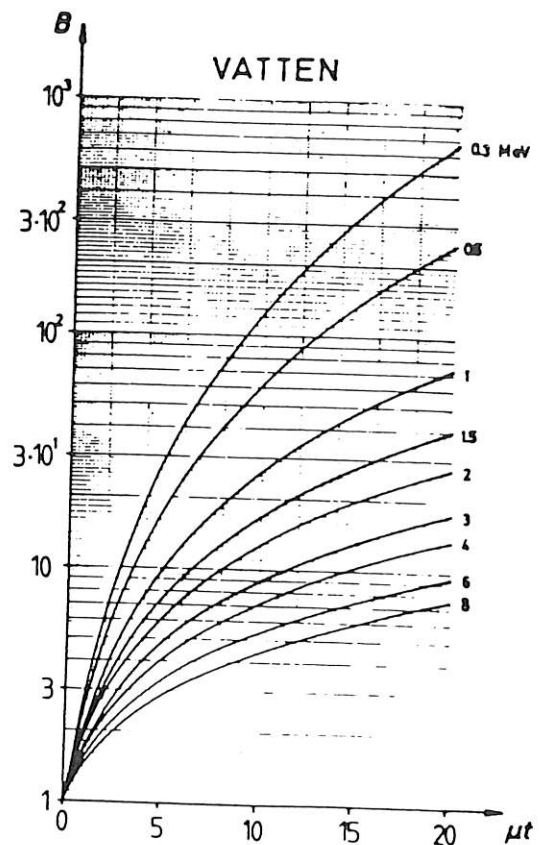
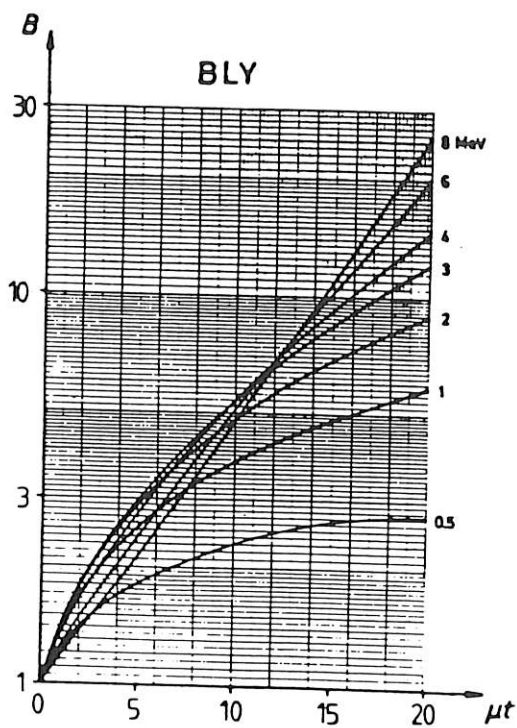
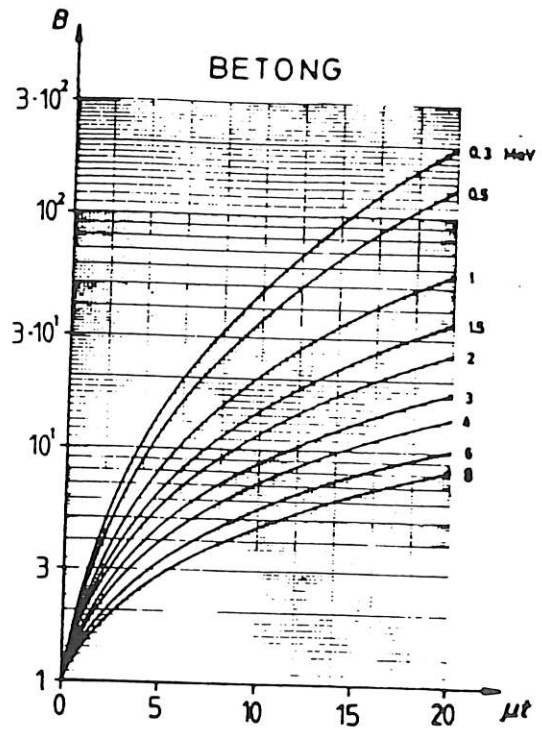
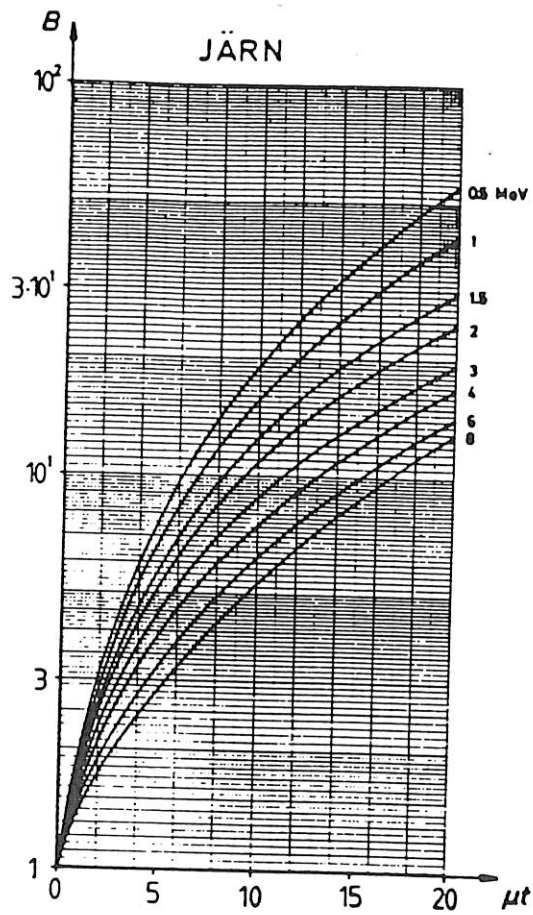
Figur 3.3 Snabba neutroners dämpning i vatten



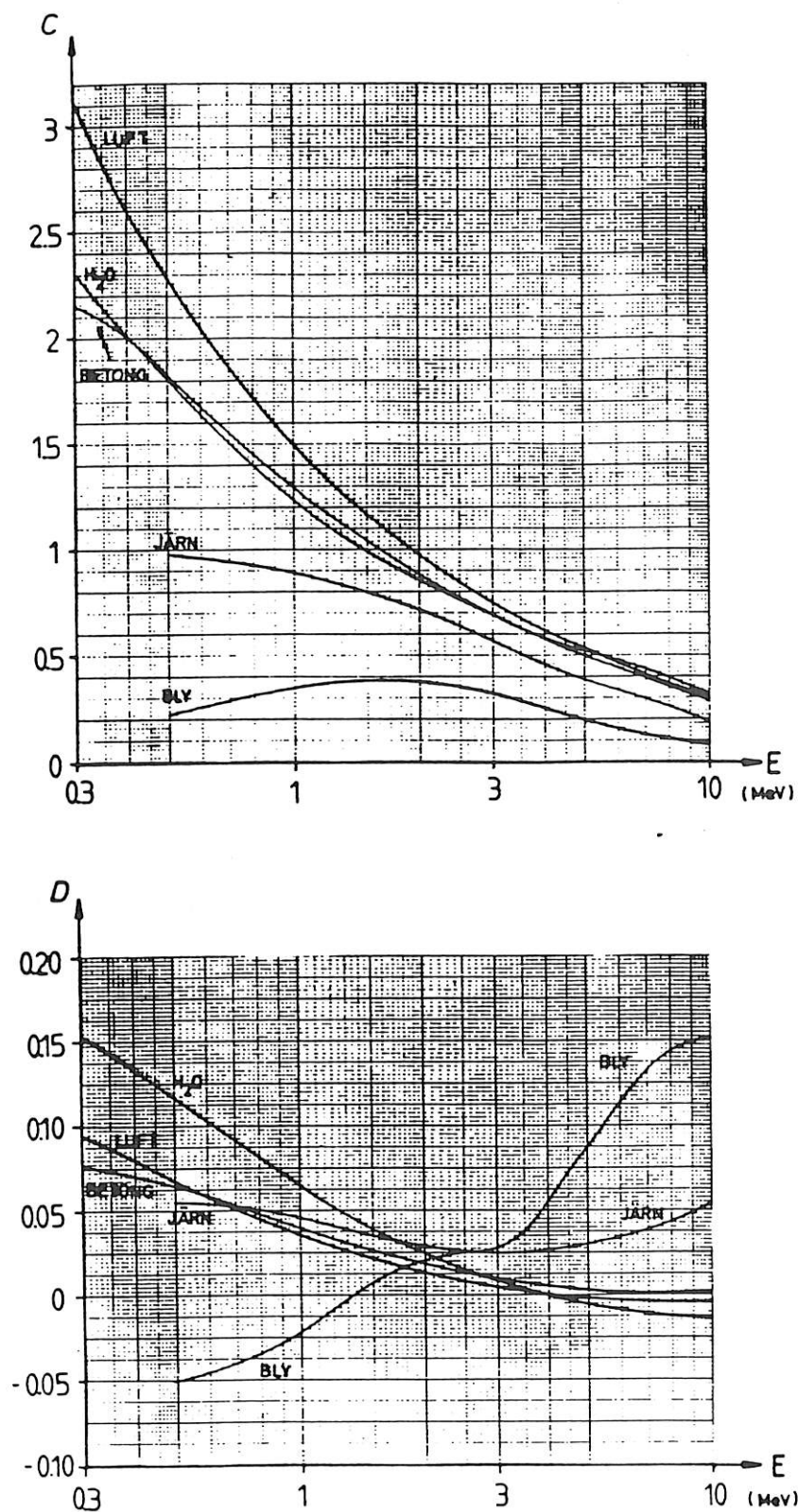
Figur 5.2 Dämpningskoefficienterna för de vanligaste skärmmaterialen som funktion av fotonenergin



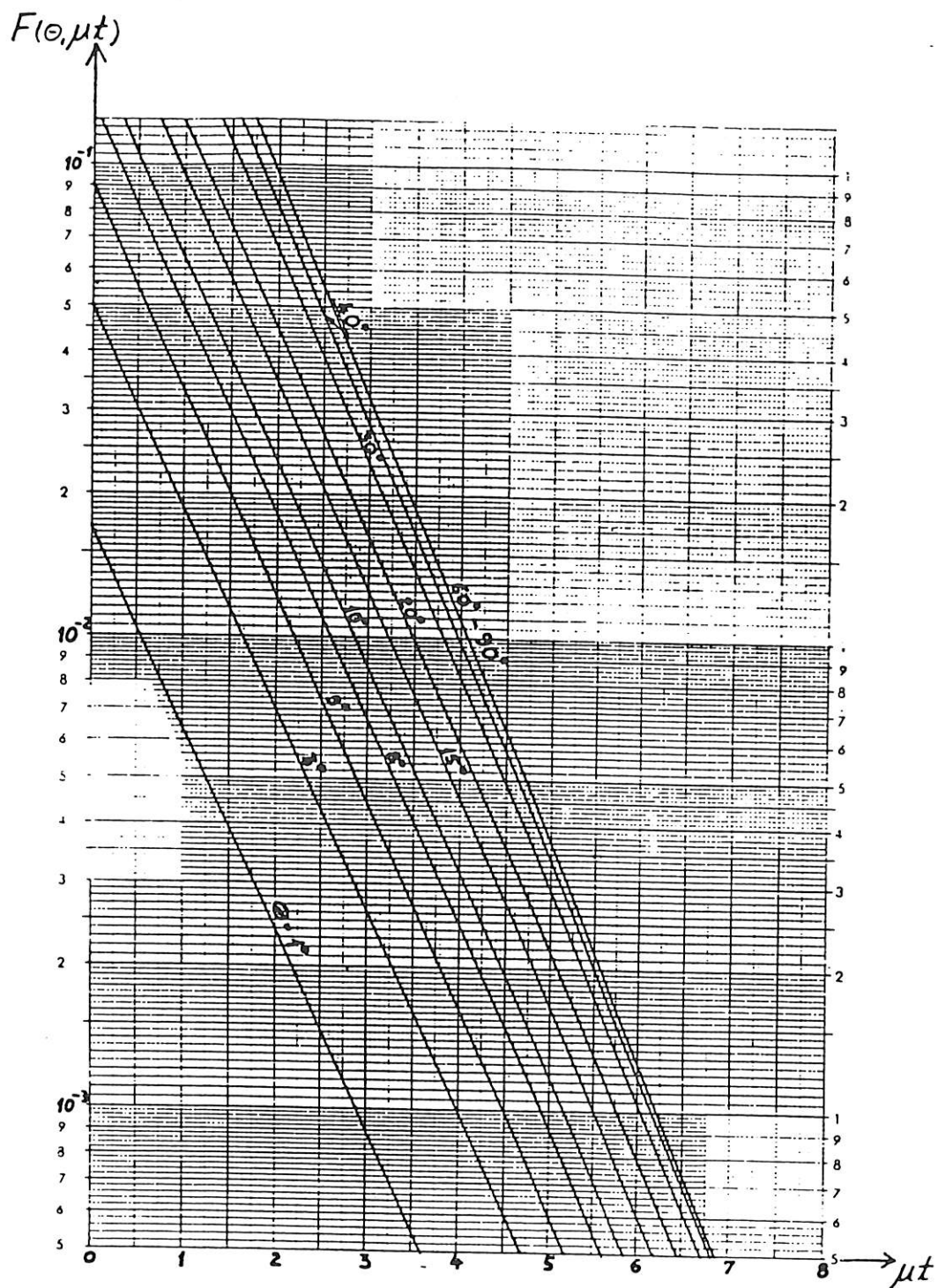
Figur 5.3 Massdämpningskoefficienterna för de vanligaste skärmmaterialen och luft som funktion av fotonenergin



Figur 5.6 Dostillväxtfaktorer (isotrop punktkälla) för de vanligaste strålskärmsmaterialen som funktion av foton-energin



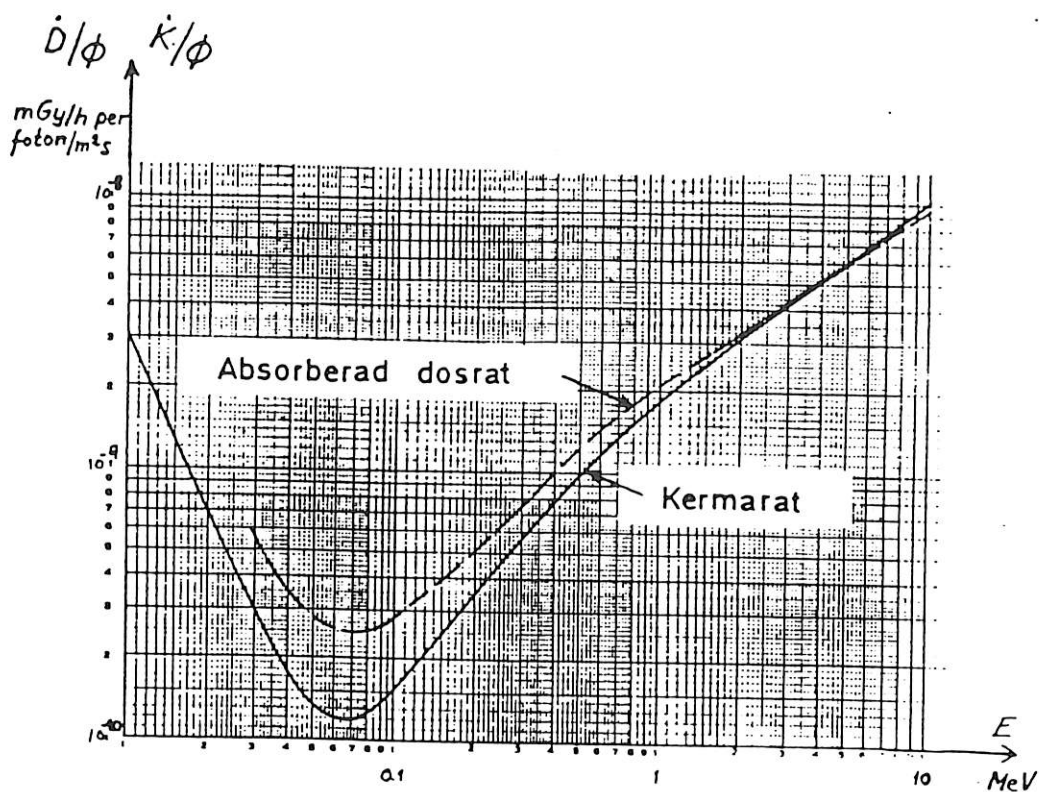
Figur 5.7 Parametrarna C och D i Bergers uttryck som funktion av fotonenergin för luft och de vanligaste strålskärmsmaterialen



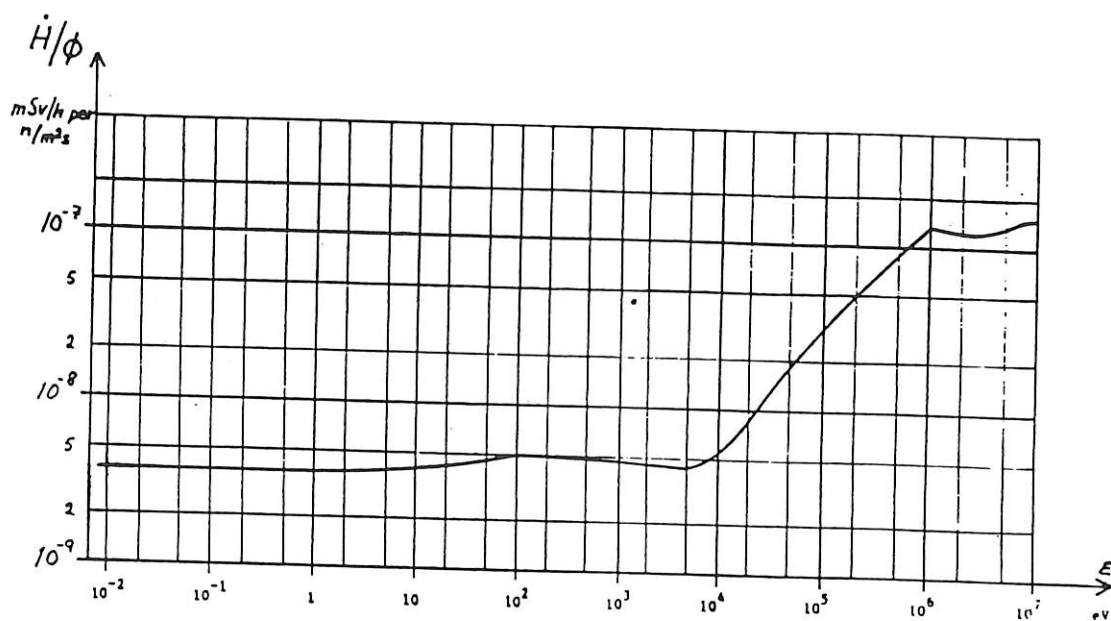
Figur 5.9 Sieverts integral $F(\theta, \mu t)$ som funktion av μt

Tabell 5.1 Halveringstjocklek för de vanligaste strålskärmsmaterialen vid några olika fotonenergier

<u>E (MeV)</u>	Halveringstjocklek (m)			
	<u>Betong</u>	<u>Vatten</u>	<u>Järn</u>	<u>Bly</u>
0,70	0,046	0,09	0,014	0,006
0,85	0,050	0,10	0,016	0,008
1,0	0,054	0,11	0,017	0,009
1,25	0,059	0,12	0,018	0,011
1,5	0,063	0,13	0,019	0,012
2	0,070	0,15	0,021	0,013
3	0,083	0,18	0,025	0,015
6,2	0,11	0,25	0,029	0,014



Figur 6.1 Keramarat och absorberad dosrat per enhetsflöde som funktion av fotonenergin för en fantom med standardmänniskans sammansättning



Figur 6.2 Dosekvivalentrat per enhetsflöde som funktion av neutronenergin

Bilaga 1

Data för några aktiveringsprodukter

	Nuklid	$T_{1/2}$	λ (s^{-1})	Strålning (MeV/sönderfall) beta gamma		Gammastrålning medelenergi (MeV)	högre energier E(MeV)/p (%)
Kol	C-15	2,45 s	$2,83 \cdot 10^{-1}$	2,07	3,62	5,3	
Kväve	N-13	9,96 m	$1,16 \cdot 10^{-3}$	-	1,02	0,51	
	-16	7,13 s	$9,72 \cdot 10^{-2}$	1,88	4,60	6,2	
Syre	O-19	26,9 s	$2,58 \cdot 10^{-2}$	1,27	1,00	0,64	1,37/59
Fluor	F-18	1,83 h	$1,05 \cdot 10^{-4}$	-	0,99	0,51	
Krom	Cr-51	27,7 d	$2,90 \cdot 10^{-7}$	-	0,029	0,32	
Mangan	Mn-54	312 d	$2,57 \cdot 10^{-8}$	-	0,84	0,84	
	-56	2,58 h	$7,47 \cdot 10^{-5}$	0,80	1,77	1,21	3,1/0,7; 2,6/1,8; 1,9/45
Järn	Fe-59	44,6 d	$1,80 \cdot 10^{-7}$	0,12	1,19	1,15	
Kobolt	Co-58	70,8 d	$1,13 \cdot 10^{-7}$	0,030	0,98	0,75	1,67/0,6
	-60	5,27 y	$4,17 \cdot 10^{-9}$	0,090	2,50	1,25	
Zink	Zn-65	244 d	$3,29 \cdot 10^{-8}$	-	0,58	1,11	
Zirkonium	Zr-95	64 d	$1,25 \cdot 10^{-7}$	0,12	0,73	0,75	
Niob	Nb-95	35 d	$2,29 \cdot 10^{-7}$	0,044	0,77	0,77	

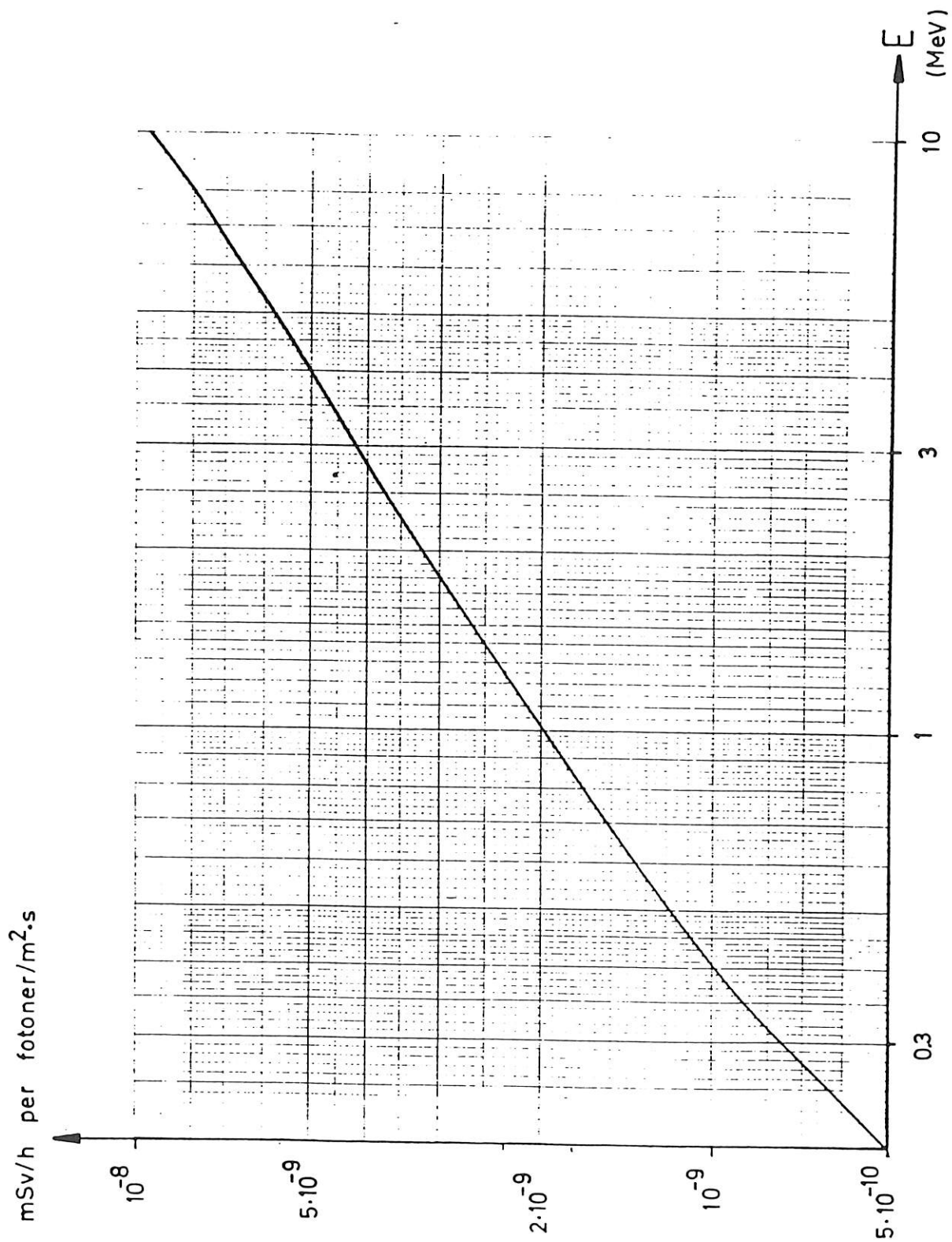
Bilaga 2

Data för några klyvningsprodukter

Nuklid		$T_{1/2}$	λ (s^{-1})	Strålning (MeV/sönderfall)		Gammastrålning	
				beta	gamma	medelenergi (MeV)	högre energier E(MeV)/p (%)
Krypton	Kr-85m	4,48 h	$4,30 \cdot 10^{-5}$	0,24	0,16	0,18	
	-85	10,7 y	$2,05 \cdot 10^{-9}$	0,25	0,002	0,51	
	-87	76 m	$1,52 \cdot 10^{-4}$	1,35	1,48	1,06	2,6/35
	-88	2,84 h	$6,78 \cdot 10^{-5}$	0,39	1,74	1,27	2,3/53
	-89	3,18 m	$3,63 \cdot 10^{-3}$	1,39	2,30	1,05	2,6/18
Xenon	Xe-133	5,25 d	$1,53 \cdot 10^{-6}$	0,15	0,029	0,08	$0,33/6 \cdot 10^{-3}$
	-135m	15,6 m	$7,41 \cdot 10^{-4}$	0,104	0,42	0,53	
	-135	9,10 h	$2,12 \cdot 10^{-5}$	0,31	0,26	0,26	0,61/2,9
	-138	14,1 m	$8,19 \cdot 10^{-4}$	-	1,92	0,94	1,89/83
Jod	I-131	8,04 d	$9,98 \cdot 10^{-7}$	0,19	0,39	0,38	0,65/8,5
	-132	2,28 h	$8,45 \cdot 10^{-5}$	0,47	2,30	0,77	2,0/2,9; 1,4/14
	-133	20,9 h	$9,21 \cdot 10^{-6}$	0,45	0,64	0,60	1,3/5,4
	-134	52,6 m	$2,20 \cdot 10^{-4}$	0,68	2,12	0,88	1,64/14
	-135	6,61 h	$2,91 \cdot 10^{-5}$	0,34	1,78	1,27	1,75/30
Rubidium	Rb-88	17,8 m	$6,49 \cdot 10^{-4}$	1,96	0,72	1,62	4,9/0,3; 3,4/0,7
	-89	15,2 m	$7,60 \cdot 10^{-4}$	0,60	2,39	1,34	3,5/2; 2,6/16
Strontium	Sr-90	28,8 y	$7,63 \cdot 10^{-10}$	0,20	-	-	
	-91	9,5 h	$2,03 \cdot 10^{-5}$	0,63	0,74	0,89	1,4/7
Cesium	Cs-134	2,06 y	$1,07 \cdot 10^{-8}$	0,16	1,57	0,70	1,3/5,5
	-137	30,2 y	$7,28 \cdot 10^{-10}$	0,26	0,56	0,66	
	-138	32,2 m	$3,59 \cdot 10^{-4}$	1,09	2,15	1,28	2,7/9,7; 2,2/17
	-139	9,5 m	$1,22 \cdot 10^{-3}$	1,74	0,23	1,15	
Barium	Ba-139	82,9 m	$1,39 \cdot 10^{-4}$	0,93	0,043	0,19	1,4/0,5
	-140	12,8 d	$6,27 \cdot 10^{-7}$	0,29	0,24	0,35	0,54/34
Lantan	La-140	40,3 h	$4,78 \cdot 10^{-6}$	0,61	2,12	1,13	2,5/3,7; 1,6/95

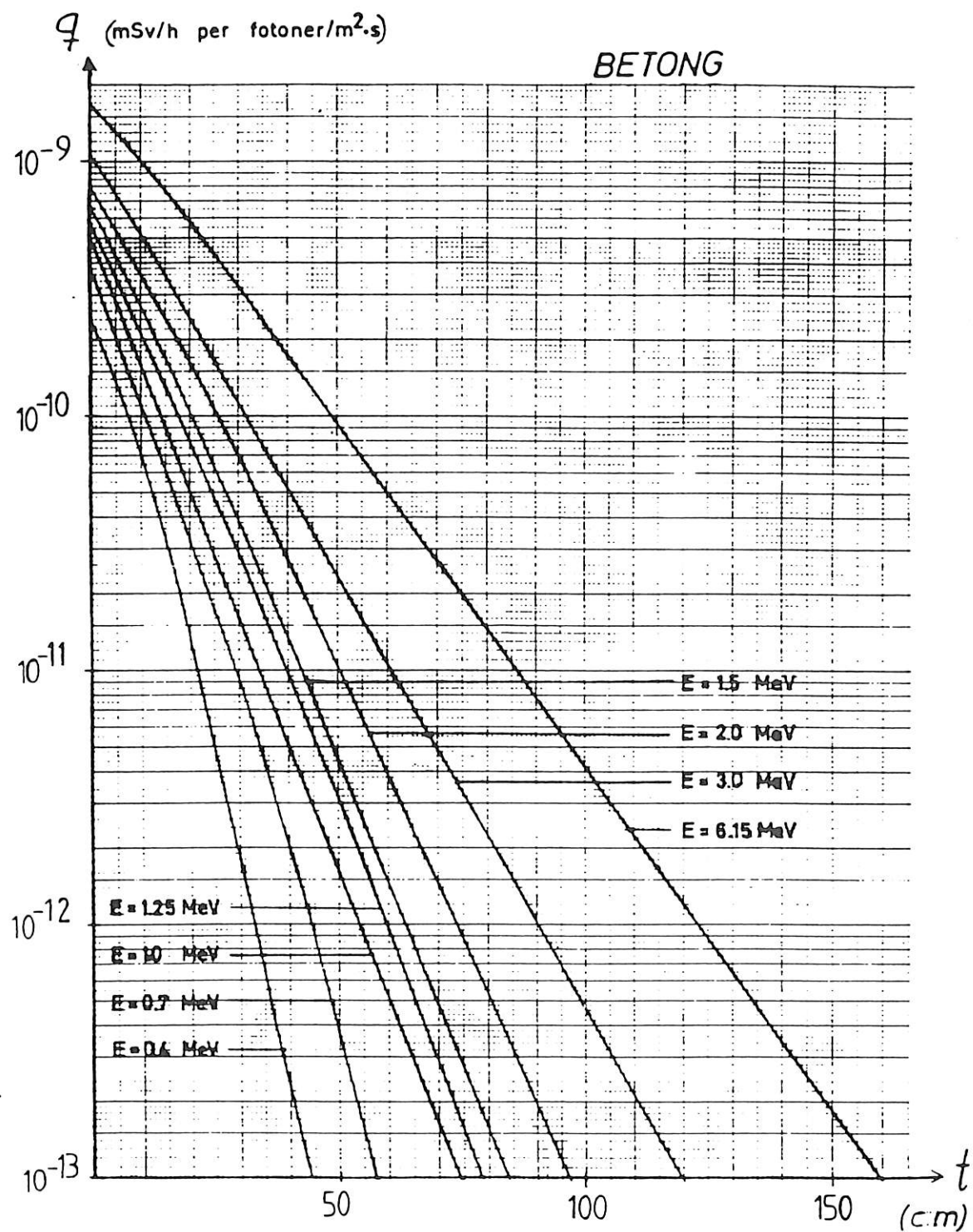
Bilaga 3

Omvandlingsfaktor från fotonflödestäthet till dosrat



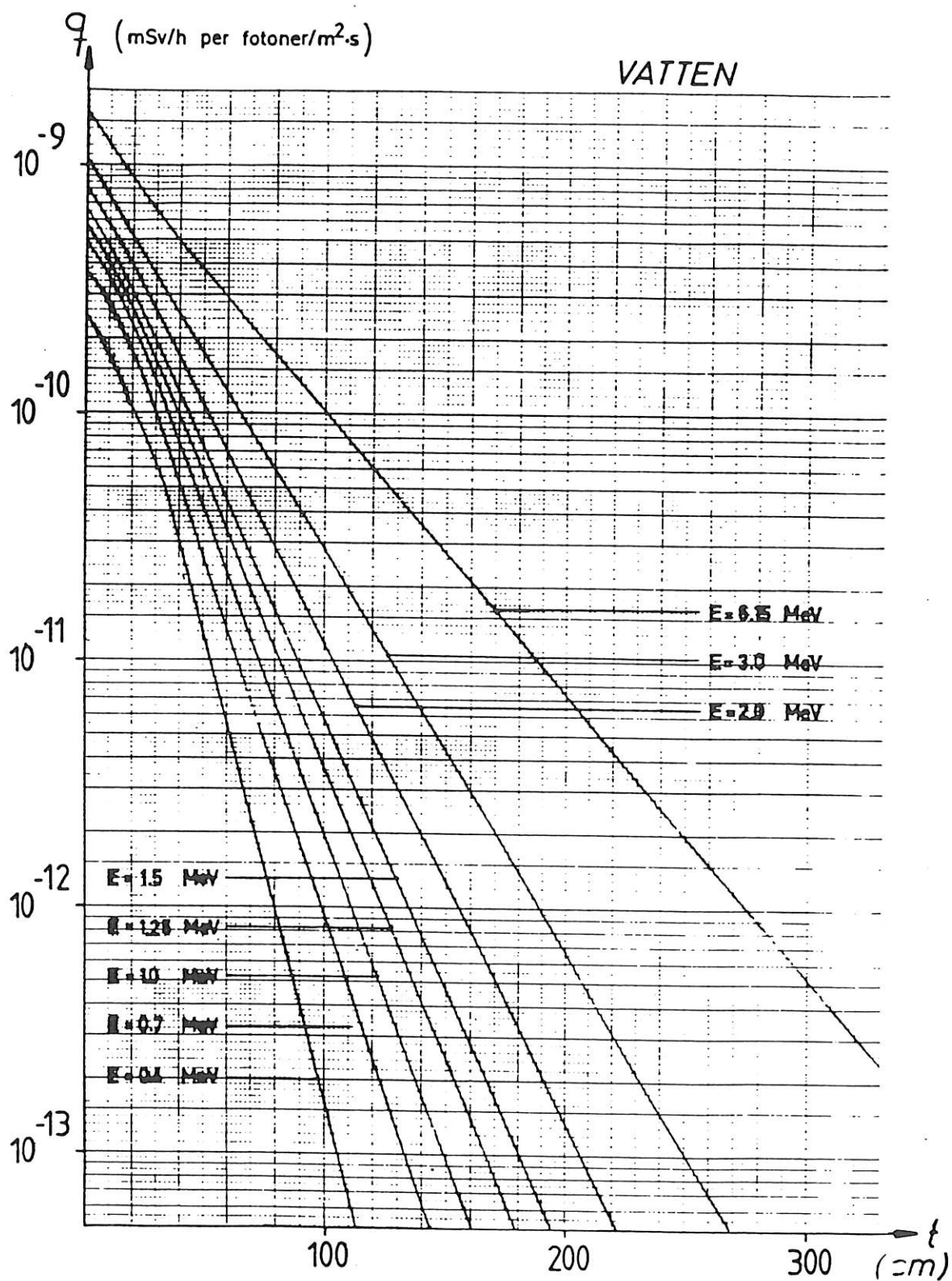
Bilaga 4

Dämpningsfunktioner för oändlig linjekälla



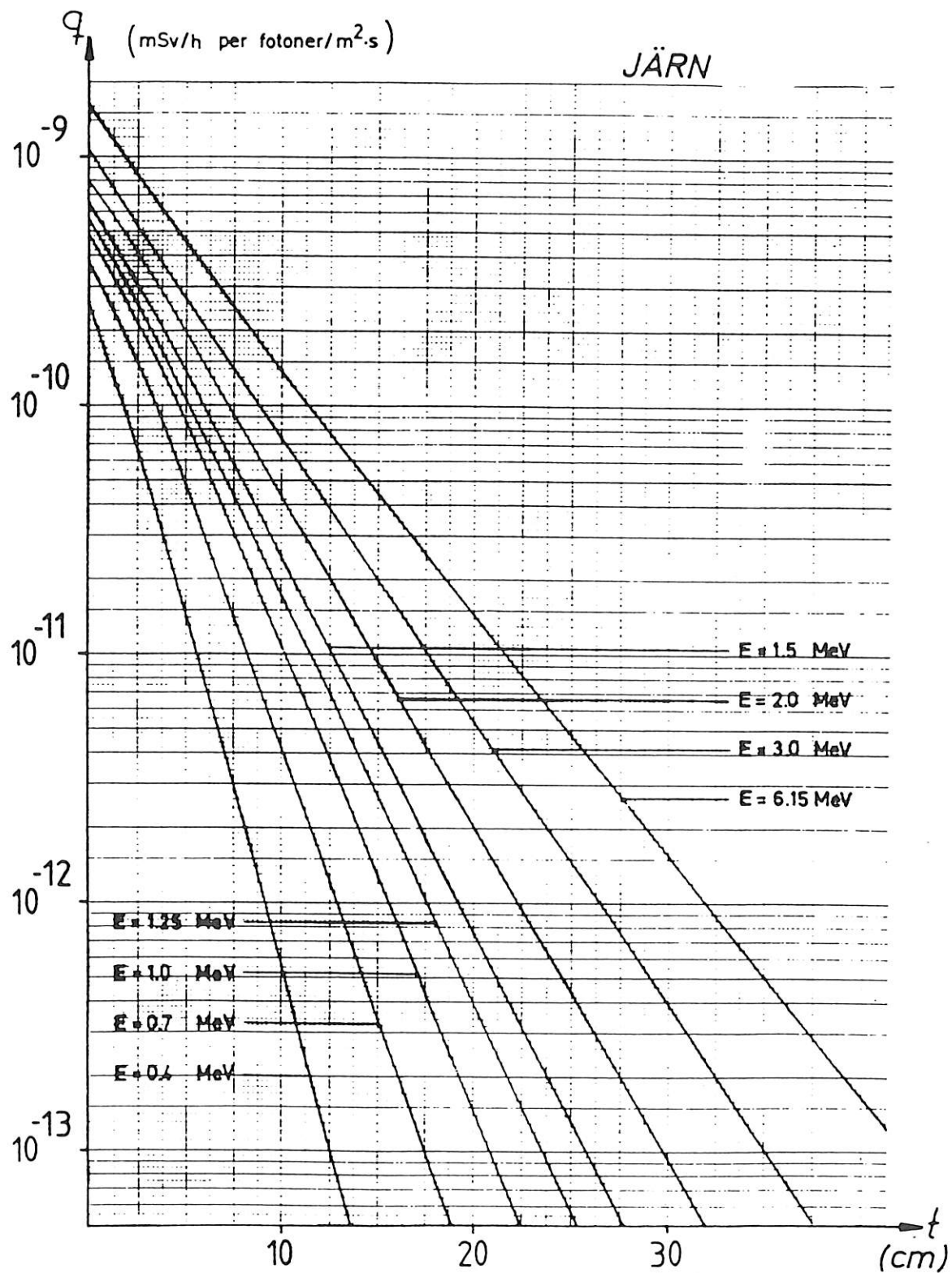
Bilaga 4

Dämpningsfunktioner för oändlig linjekälla



Bilaga 4

Dämpningsfunktioner för oändlig linjekälla



Bilaga 4

Dämpningsfunktioner för oändlig linjekälla

