

Time (min)	L	B/B ₀	>122MeV	>123MeV	>124MeV	>126MeV	>127MeV	>128MeV	>129MeV	>131MeV	>132MeV	>133MeV	>134MeV	>136MeV	>137MeV	>138MeV	>139MeV	>141MeV	TOTAL RADS
5	1.44168	2.14962	1.119E+02 (0.05825rad, 0.00349rad)	1.106E+02 (0.05804rad, 0.00348rad)	1.093E+02 (0.05783rad, 0.00347rad)	1.068E+02 (0.05742rad, 0.00344rad)	1.056E+02 (0.05722rad, 0.00343rad)	1.043E+02 (0.05696rad, 0.00342rad)	1.031E+02 (0.05675rad, 0.00340rad)	1.008E+02 (0.05634rad, 0.00338rad)	9.961E+01 (0.05610rad, 0.00336rad)	9.846E+01 (0.05587rad, 0.00335rad)	9.732E+01 (0.05564rad, 0.00334rad)	9.509E+01 (0.05518rad, 0.00331rad)	9.399E+01 (0.05494rad, 0.00330rad)	9.290E+01 (0.05470rad, 0.00328rad)	9.183E+01 (0.05446rad, 0.00327rad)	8.972E+01 (0.05398rad, 0.00324rad)	0.89968rad, 0.05396rad
6	1.51254	2.50334	1.463E+02 (0.07615rad, 0.00457rad)	1.444E+02 (0.07578rad, 0.00455rad)	1.424E+02 (0.07534rad, 0.00452rad)	1.386E+02 (0.07451rad, 0.00447rad)	1.367E+02 (0.07407rad, 0.00444rad)	1.349E+02 (0.07367rad, 0.00442rad)	1.198E+02 (0.07326rad, 0.00396rad)	1.295E+02 (0.07238rad, 0.00434rad)	1.278E+02 (0.07198rad, 0.00432rad)	1.261E+02 (0.07156rad, 0.00429rad)	1.244E+02 (0.07112rad, 0.00427rad)	1.210E+02 (0.07021rad, 0.00421rad)	1.194E+02 (0.06979rad, 0.00419rad)	1.178E+02 (0.06936rad, 0.00416rad)	1.162E+02 (0.06891rad, 0.00413rad)	1.131E+02 (0.06804rad, 0.00408rad)	1.15613rad, 0.06892rad
7	1.62236	2.90373	2.036E+02 (0.10598rad, 0.00636rad)	2.001E+02 (0.10501rad, 0.00630rad)	1.966E+02 (0.10401rad, 0.00624rad)	1.898E+02 (0.10204rad, 0.00612rad)	1.865E+02 (0.10106rad, 0.00606rad)	1.832E+02 (0.10005rad, 0.00600rad)	1.800E+02 (0.09907rad, 0.00594rad)	1.738E+02 (0.09714rad, 0.00583rad)	1.708E+02 (0.09619rad, 0.00577rad)	1.678E+02 (0.09522rad, 0.00571rad)	1.649E+02 (0.09428rad, 0.00566rad)	1.592E+02 (0.09238rad, 0.00554rad)	1.564E+02 (0.09142rad, 0.00549rad)	1.537E+02 (0.09050rad, 0.00543rad)	1.510E+02 (0.08955rad, 0.00537rad)	1.458E+02 (0.08771rad, 0.00526rad)	1.55161rad, 0.08754rad
8	1.73976	3.34539	9.248E+01 (0.04814rad, 0.00294rad)	9.039E+01 (0.04744rad, 0.00285rad)	8.835E+01 (0.04674rad, 0.00280rad)	8.441E+01 (0.04537rad, 0.00272rad)	8.251E+01 (0.04471rad, 0.00268rad)	8.065E+01 (0.04405rad, 0.00264rad)	7.883E+01 (0.04339rad, 0.00260rad)	7.531E+01 (0.04209rad, 0.00253rad)	7.362E+01 (0.04146rad, 0.00249rad)	7.196E+01 (0.04083rad, 0.00245rad)	7.033E+01 (0.04021rad, 0.00241rad)	6.720E+01 (0.03899rad, 0.00234rad)	6.568E+01 (0.03839rad, 0.00230rad)	6.420E+01 (0.03780rad, 0.00227rad)	6.275E+01 (0.03721rad, 0.00223rad)	5.995E+01 (0.03607rad, 0.00216rad)	0.67280rad, 0.04042rad
9	1.86325	3.82043	4.260E+01 (0.02217rad, 0.00133rad)	4.154E+01 (0.02180rad, 0.00131rad)	4.051E+01 (0.02143rad, 0.00129rad)	3.852E+01 (0.02071rad, 0.00124rad)	3.756E+01 (0.02035rad, 0.00122rad)	3.663E+01 (0.02000rad, 0.00120rad)	3.572E+01 (0.01966rad, 0.00118rad)	3.230E+01 (0.01805rad, 0.00108rad)	3.312E+01 (0.01865rad, 0.00112rad)	3.230E+01 (0.01833rad, 0.00110rad)	3.150E+01 (0.01801rad, 0.00108rad)	2.995E+01 (0.01738rad, 0.00104rad)	2.921E+01 (0.01707rad, 0.00102rad)	2.848E+01 (0.01677rad, 0.00101rad)	2.777E+01 (0.01647rad, 0.00099rad)	2.641E+01 (0.01589rad, 0.00095rad)	0.30274rad, 0.01816rad
10	1.99131	4.31882	2.607E+01 (0.01357rad, 0.00081rad)	2.550E+01 (0.01338rad, 0.00080rad)	2.495E+01 (0.01320rad, 0.00079rad)	2.387E+01 (0.01283rad, 0.00077rad)	2.335E+01 (0.01265rad, 0.00076rad)	2.284E+01 (0.01247rad, 0.00075rad)	2.234E+01 (0.01230rad, 0.00074rad)	2.138E+01 (0.01195rad, 0.00072rad)	2.091E+01 (0.01178rad, 0.00071rad)	2.046E+01 (0.01161rad, 0.00070rad)	2.001E+01 (0.01144rad, 0.00069rad)	1.915E+01 (0.01111rad, 0.00067rad)	1.873E+01 (0.01095rad, 0.00066rad)	1.832E+01 (0.01079rad, 0.00065rad)	1.792E+01 (0.01063rad, 0.00064rad)	1.715E+01 (0.01032rad, 0.00062rad)	0.17954rad, 0.01148rad
11	2.12248	4.82912	8.860E+00 (0.00461rad, 0.00028rad)	6.650E+00 (0.00454rad, 0.00021rad)	8.446E+00 (0.00447rad, 0.00027rad)	8.050E+00 (0.00433rad, 0.00026rad)	7.860E+00 (0.00426rad, 0.00026rad)	7.673E+00 (0.00419rad, 0.00025rad)	7.492E+00 (0.00412rad, 0.00025rad)	7.141E+00 (0.00399rad, 0.00024rad)	6.972E+00 (0.00393rad, 0.00024rad)	6.807E+00 (0.00386rad, 0.00023rad)	6.646E+00 (0.00380rad, 0.00023rad)	6.334E+00 (0.00368rad, 0.00022rad)	6.184E+00 (0.00361rad, 0.00022rad)	6.038E+00 (0.00356rad, 0.00021rad)	5.895E+00 (0.00350rad, 0.00021rad)	5.619E+00 (0.00338rad, 0.00020rad)	0.06383rad, 0.00378rad
12	2.25532	5.33932	1.825E+00 (0.00095rad, 0.00006rad)	1.757E+00 (0.00092rad, 0.00006rad)	1.691E+00 (0.00089rad, 0.00005rad)	1.566E+00 (0.00084rad, 0.00005rad)	1.508E+00 (0.00082rad, 0.00005rad)	1.451E+00 (0.00079rad, 0.00005rad)	1.397E+00 (0.00077rad, 0.00005rad)	1.294E+00 (0.00072rad, 0.00004rad)	1.246E+00 (0.00070rad, 0.00004rad)	1.199E+00 (0.00068rad, 0.00004rad)	1.154E+00 (0.00066rad, 0.00004rad)	1.069E+00 (0.00062rad, 0.00004rad)	1.029E+00 (0.00060rad, 0.00004rad)	0	0	0	0.00996rad, 0.00061rad
TOTALS																			4.83629rad, 0.28487rad

Skin dose Calculations

$$\begin{aligned} &(\text{Protons/cm}^2/\text{s}) \cdot (100^2 \text{cm}^2) \cdot (3600 \text{s/hr}) = \text{Protons/m}^2/\text{hr} \\ &(\text{Protons/m}^2/\text{hr}) \cdot 2 \text{m}^2 = \text{Protons/hr} \\ &\text{Protons/hr} \cdot (E \text{ MeV/Proton}) = E \text{ MeV/hr} \\ &(E \text{ MeV/hr}) \cdot (1.6 \cdot 10^{-13} / \text{MeV}) = \text{Joules/hr} \\ &(\text{Joules/hr}) / 4.5 \text{kg} = \text{Gray/hr} \\ &(\text{Gray/hr}) \cdot 100 \text{rad/hr} = \text{rad/hr} \\ &\text{Rad/hr} \cdot 1/60 = \text{rad/min} \end{aligned}$$

Depth dose Calculations

$$\begin{aligned} &(\text{Protons/cm}^2/\text{s}) \cdot (100^2 \text{cm}^2) \cdot (3600 \text{s/hr}) = \text{Protons/m}^2/\text{hr} \\ &(\text{Protons/m}^2/\text{hr}) \cdot 2 \text{m}^2 = \text{Protons/hr} \\ &\text{Protons/hr} \cdot (E \text{ MeV/Proton}) = E \text{ MeV/hr} \\ &(E \text{ MeV/hr}) \cdot (1.6 \cdot 10^{-13} / \text{MeV}) = \text{Joules/hr} \end{aligned}$$

$$(\text{Joules/hr})/75\text{kg} = \text{Gray/hr}$$

$$(\text{Gray/hr}) * 100\text{rad/hr} = \text{rad/hr}$$

$$\text{Rad/hr} * 1/60 = \text{rad/min}$$