

Time (min)	L	B/B ₀	>101MeV (rad)	>102MeV	>103MeV	>104MeV	>106MeV	>107MeV	>108MeV	>109MeV	>111MeV	>112MeV	>113MeV	>114MeV	>116MeV	>117MeV	>118MeV	>119MeV	>121MeV	TOTAL RADS	
5	1.44168	2.14962	1.428E+02 (0.06154rad, 0.00369rad)	1.412E+02 (0.06145rad, 0.00369rad)	1.395E+02 (0.06131rad, 0.00368rad)	1.379E+02 (0.06119rad, 0.00367rad)	1.347E+02 (0.06092rad, 0.00366rad)	1.332E+02 (0.06081rad, 0.00365rad)	1.316E+02 (0.06064rad, 0.00364rad)	1.301E+02 (0.06051rad, 0.00353rad)	1.271E+02 (0.06019rad, 0.00361rad)	1.257E+02 (0.06007rad, 0.00360rad)	1.242E+02 (0.05988rad, 0.00359rad)	1.228E+02 (0.05923rad, 0.00358rad)	1.200E+02 (0.05939rad, 0.00356rad)	1.186E+02 (0.05921rad, 0.00355rad)	1.172E+02 (0.05901rad, 0.00354rad)	1.159E+02 (0.05885rad, 0.00353rad)	1.132E+02 (0.05844rad, 0.00351rad)	1.02264rad, 0.06128rad	
6	1.51254	2.50334	1.945E+02 (0.08382rad, 0.00503rad)	1.919E+02 (0.08351rad, 0.00501rad)	1.893E+02 (0.08319rad, 0.00499rad)	1.868E+02 (0.08289rad, 0.00497rad)	1.818E+02 (0.08222rad, 0.00493rad)	1.793E+02 (0.08186rad, 0.00491rad)	1.769E+02 (0.08152rad, 0.00489rad)	1.745E+02 (0.08115rad, 0.00487rad)	1.699E+02 (0.08046rad, 0.00482rad)	1.676E+02 (0.08009rad, 0.00481rad)	1.653E+02 (0.07970rad, 0.00478rad)	1.631E+02 (0.07933rad, 0.00476rad)	1.587E+02 (0.07855rad, 0.00465rad)	1.566E+02 (0.07817rad, 0.00469rad)	1.545E+02 (0.07779rad, 0.00467rad)	1.524E+02 (0.07738rad, 0.00464rad)	1.483E+02 (0.07656rad, 0.00459rad)	1.36819rad, 0.08201rad	
7	1.62236	2.90373	2.946E+02 (0.12695rad, 0.00762rad)	2.895E+02 (0.12599rad, 0.00756rad)	2.844E+02 (0.12498rad, 0.00750rad)	2.795E+02 (0.12402rad, 0.00744rad)	2.698E+02 (0.12202rad, 0.00732rad)	2.651E+02 (0.12103rad, 0.00726rad)	2.605E+02 (0.12004rad, 0.00720rad)	2.559E+02 (0.11901rad, 0.00714rad)	2.471E+02 (0.11703rad, 0.00702rad)	2.428E+02 (0.11603rad, 0.00696rad)	2.385E+02 (0.11499rad, 0.00690rad)	2.344E+02 (0.11401rad, 0.00684rad)	2.263E+02 (0.11200rad, 0.00672rad)	2.223E+02 (0.11097rad, 0.00666rad)	2.185E+02 (0.11001rad, 0.00660rad)	2.147E+02 (0.10901rad, 0.00654rad)	2.072E+02 (0.10697rad, 0.00642rad)	1.87304rad, 0.11310rad	
8	1.73976	3.34539	1.493E+02 (0.06434rad, 0.00386rad)	1.459E+02 (0.06350rad, 0.00381rad)	1.426E+02 (0.06267rad, 0.00376rad)	1.394E+02 (0.06186rad, 0.00371rad)	1.332E+02 (0.06024rad, 0.00361rad)	1.302E+02 (0.05944rad, 0.00357rad)	1.273E+02 (0.05866rad, 0.00352rad)	1.244E+02 (0.05785rad, 0.00347rad)	1.188E+02 (0.05626rad, 0.00338rad)	1.162E+02 (0.05553rad, 0.00333rad)	1.135E+02 (0.05477rad, 0.00328rad)	1.110E+02 (0.05399rad, 0.00324rad)	1.060E+02 (0.05246rad, 0.00315rad)	1.036E+02 (0.05172rad, 0.00310rad)	1.013E+02 (0.05100rad, 0.00306rad)	9.902E+01 (0.05028rad, 0.00302rad)	9.461E+01 (0.04884rad, 0.00293rad)	0.67923rad, 0.05780rad	
9	1.86325	3.82043	7.225E+01 (0.03113rad, 0.00187rad)	7.046E+01 (0.03066rad, 0.00184rad)	6.871E+01 (0.03040rad, 0.00181rad)	6.700E+01 (0.02973rad, 0.00178rad)	6.371E+01 (0.02881rad, 0.00173rad)	6.213E+01 (0.02836rad, 0.00170rad)	6.058E+01 (0.02792rad, 0.00167rad)	5.908E+01 (0.02748rad, 0.00165rad)	5.618E+01 (0.02661rad, 0.00160rad)	5.478E+01 (0.02618rad, 0.00157rad)	5.342E+01 (0.02576rad, 0.00155rad)	5.210E+01 (0.02534rad, 0.00152rad)	4.954E+01 (0.02452rad, 0.00147rad)	4.831E+01 (0.02412rad, 0.00145rad)	4.711E+01 (0.02372rad, 0.00140rad)	4.594E+01 (0.02333rad, 0.00135rad)	4.368E+01 (0.02255rad, 0.00135rad)	0.45663rad, 0.02738rad	
10	1.99131	4.31882	4.142E+01 (0.01785rad, 0.00107rad)	4.052E+01 (0.01763rad, 0.00106rad)	3.964E+01 (0.01742rad, 0.00105rad)	3.877E+01 (0.01720rad, 0.00103rad)	3.710E+01 (0.01678rad, 0.00101rad)	3.629E+01 (0.01657rad, 0.00099rad)	3.550E+01 (0.01636rad, 0.00098rad)	3.473E+01 (0.01615rad, 0.00097rad)	3.323E+01 (0.01574rad, 0.00094rad)	3.250E+01 (0.01553rad, 0.00093rad)	3.179E+01 (0.01533rad, 0.00092rad)	3.110E+01 (0.01513rad, 0.00091rad)	2.976E+01 (0.01473rad, 0.00088rad)	2.911E+01 (0.01453rad, 0.00087rad)	2.848E+01 (0.01434rad, 0.00086rad)	2.786E+01 (0.01415rad, 0.00085rad)	2.665E+01 (0.01376rad, 0.00083rad)	0.26920rad, 0.01615rad	
11	2.12248	4.82912	1.466E+01 (0.00632rad, 0.00038rad)	1.431E+01 (0.00623rad, 0.00037rad)	1.397E+01 (0.00614rad, 0.00037rad)	1.364E+01 (0.00605rad, 0.00036rad)	1.300E+01 (0.00588rad, 0.00035rad)	1.269E+01 (0.00579rad, 0.00035rad)	1.239E+01 (0.00571rad, 0.00034rad)	1.210E+01 (0.00563rad, 0.00034rad)	1.153E+01 (0.00546rad, 0.00033rad)	1.126E+01 (0.00538rad, 0.00032rad)	1.099E+01 (0.00530rad, 0.00032rad)	1.073E+01 (0.00522rad, 0.00031rad)	1.023E+01 (0.00506rad, 0.00030rad)	9.988E+00 (0.00499rad, 0.00030rad)	9.752E+00 (0.00491rad, 0.00029rad)	9.521E+00 (0.00483rad, 0.00029rad)	9.075E+00 (0.00469rad, 0.00028rad)	0.09368rad, 0.00560rad	
12	2.25532	5.33932	4.069E+00 (0.00175rad, 0.00011rad)	3.916E+00 (0.00170rad, 0.00010rad)	3.769E+00 (0.00165rad, 0.00010rad)	3.628E+00 (0.00161rad, 0.00010rad)	3.362E+00 (0.00152rad, 0.00009rad)	3.236E+00 (0.00148rad, 0.00009rad)	3.114E+00 (0.00143rad, 0.00009rad)	2.998E+00 (0.00139rad, 0.00008rad)	2.777E+00 (0.00132rad, 0.00008rad)	2.673E+00 (0.00128rad, 0.00008rad)	2.573E+00 (0.00124rad, 0.00007rad)	2.477E+00 (0.00120rad, 0.00007rad)	2.295E+00 (0.00114rad, 0.00007rad)	2.209E+00 (0.00110rad, 0.00007rad)	2.126E+00 (0.00107rad, 0.00006rad)	2.046E+00 (0.00104rad, 0.00006rad)	1.896E+00 (0.00098rad, 0.00006rad)	0.02290rad, 0.00138rad	
13	2.38857	5.83768	1.281E+00 (0.00055rad, 0.00003rad)	1.224E+00 (0.00053rad, 0.00003rad)	1.169E+00 (0.00051rad, 0.00003rad)	1.117E+00 (0.00050rad, 0.00003rad)	1.019E+00 (0.00046rad, 0.00003rad)	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00255rad, 0.00015rad
TOTALS																				5.78806rad, 0.36485rad	

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

$$\begin{aligned} &(\text{Protons/cm}^2/\text{s}) \cdot (100^2 \text{cm}^2) \cdot (3600 \text{s/hr}) = \text{Protons/m}^2/\text{hr} \\ &(\text{Protons/m}^2/\text{hr}) \cdot 2 \text{m}^2 = \text{Protons/hr} \end{aligned}$$

Protons/hr*(E MeV/Proton) = E MeV/hr
(E MeV/hr)*(1.6*10⁻¹³/MeV) = Joules/hr
(Joules/hr)/75kg = Gray/hr
(Gray/hr)*100rad/hr = rad/hr
Rad/hr*1/60 = rad/min