

Time (min)	L	B/B ₀	>32MeV	>33MeV	>34MeV	>36MeV	>37MeV	>38MeV	>39MeV	>41MeV	>42MeV	>43MeV	>44MeV	>46MeV	>47MeV	>48MeV	>49MeV	>51MeV	>52MeV	TOTALS	
5	1.44168	2.14962	2.419E+02 (0.03303rad, 0.00198rad)	2.403E+02 (0.03383rad, 0.00203rad)	2.386E+02 (0.03461rad, 0.00208rad)	2.386E+02 (0.03665rad, 0.00220rad)	2.337E+02 (0.03689rad, 0.00221rad)	2.320E+02 (0.03761rad, 0.00226rad)	2.304E+02 (0.03834rad, 0.00230rad)	2.272E+02 (0.03974rad, 0.00238rad)	2.256E+02 (0.04043rad, 0.00243rad)	2.241E+02 (0.04111rad, 0.00247rad)	2.225E+02 (0.04177rad, 0.00251rad)	2.194E+02 (0.04306rad, 0.00258rad)	2.179E+02 (0.04370rad, 0.00262rad)	2.164E+02 (0.04432rad, 0.00266rad)	2.149E+02 (0.04493rad, 0.00270rad)	2.119E+02 (0.04611rad, 0.00277rad)	2.105E+02 (0.04670rad, 0.00280rad)	0.63851rad, 0.04098rad	
6	1.51254	2.50334	4.013E+02 (0.05479rad, 0.00329rad)	3.971E+02 (0.05591rad, 0.00335rad)	3.929E+02 (0.05700rad, 0.00342rad)	3.848E+02 (0.05911rad, 0.00355rad)	3.808E+02 (0.06012rad, 0.00361rad)	3.768E+02 (0.06109rad, 0.00367rad)	3.729E+02 (0.06205rad, 0.00372rad)	3.652E+02 (0.06389rad, 0.00383rad)	3.614E+02 (0.06476rad, 0.00389rad)	3.576E+02 (0.06561rad, 0.00394rad)	3.539E+02 (0.06644rad, 0.00399rad)	3.466E+02 (0.06803rad, 0.00408rad)	3.430E+02 (0.06878rad, 0.00413rad)	3.394E+02 (0.06951rad, 0.00417rad)	3.359E+02 (0.07023rad, 0.00421rad)	3.294E+02 (0.07168rad, 0.00430rad)	3.265E+02 (0.07244rad, 0.00435rad)	1.09144rad, 0.06550rad	
7	1.62236	2.90373	7.99E+02 (0.10910rad, 0.00655rad)	7.891E+02 (0.11111rad, 0.00667rad)	7.792E+02 (0.11304rad, 0.00678rad)	7.598E+02 (0.11671rad, 0.00700rad)	7.503E+02 (0.11845rad, 0.00711rad)	7.410E+02 (0.12014rad, 0.00721rad)	7.317E+02 (0.12175rad, 0.00731rad)	7.135E+02 (0.12481rad, 0.00749rad)	7.046E+02 (0.12626rad, 0.00758rad)	6.958E+02 (0.12766rad, 0.00766rad)	6.871E+02 (0.12899rad, 0.00774rad)	6.700E+02 (0.13150rad, 0.00789rad)	6.616E+02 (0.13267rad, 0.00796rad)	6.533E+02 (0.13380rad, 0.00803rad)	6.452E+02 (0.13489rad, 0.00809rad)	6.289E+02 (0.13685rad, 0.00821rad)	6.207E+02 (0.13771rad, 0.00826rad)	2.12544rad, 0.12754rad	
8	1.73976	3.34539	7.073E+02 (0.09657rad, 0.00579rad)	6.887E+02 (0.09697rad, 0.00582rad)	6.740E+02 (0.09777rad, 0.00587rad)	6.455E+02 (0.09915rad, 0.00595rad)	6.317E+02 (0.09972rad, 0.00598rad)	6.18E+02 (0.10020rad, 0.00601rad)	6.050E+02 (0.10067rad, 0.00604rad)	5.794E+02 (0.10136rad, 0.00608rad)	5.671E+02 (0.10162rad, 0.00610rad)	5.549E+02 (0.10181rad, 0.00611rad)	5.431E+02 (0.10196rad, 0.00612rad)	5.201E+02 (0.10208rad, 0.00612rad)	5.090E+02 (0.10207rad, 0.00612rad)	4.982E+02 (0.10203rad, 0.00612rad)	4.875E+02 (0.10192rad, 0.00612rad)	4.672E+02 (0.10166rad, 0.00610rad)	4.574+02 (0.10148rad, 0.00609rad)	1.60872rad, 0.10254rad	
9	1.86325	3.82043	5.528E+02 (0.07548rad, 0.00453rad)	5.344E+02 (0.07524rad, 0.00451rad)	5.165E+02 (0.07493rad, 0.00450rad)	4.826E+02 (0.07413rad, 0.00445rad)	4.665E+02 (0.07364rad, 0.00439rad)	4.510E+02 (0.07312rad, 0.00435rad)	4.359E+02 (0.07253rad, 0.00435rad)	4.073E+02 (0.07125rad, 0.00423rad)	3.937E+02 (0.07055rad, 0.00420rad)	3.806E+02 (0.06983rad, 0.00414rad)	3.679E+02 (0.06907rad, 0.00414rad)	3.437E+02 (0.06746rad, 0.00405rad)	3.323E+02 (0.06664rad, 0.00400rad)	3.212E+02 (0.06578rad, 0.00395rad)	3.105E+02 (0.06492rad, 0.00389rad)	2.915E+02 (0.06343rad, 0.00381rad)	2.831E+02 (0.06281rad, 0.00377rad)	1.11668rad, 0.07147rad	
10	1.99131	4.31882	4.400E+02 (0.06007rad, 0.00360rad)	4.208E+02 (0.05925rad, 0.00355rad)	4.025E+02 (0.05839rad, 0.00350rad)	3.682E+02 (0.05656rad, 0.00339rad)	3.522E+02 (0.05560rad, 0.00334rad)	3.369E+02 (0.05462rad, 0.00328rad)	3.222E+02 (0.05361rad, 0.00322rad)	2.948E+02 (0.05157rad, 0.00309rad)	2.820E+02 (0.05053rad, 0.00303rad)	2.697E+02 (0.04948rad, 0.00297rad)	2.580E+02 (0.04844rad, 0.00291rad)	2.360E+02 (0.04632rad, 0.00278rad)	2.257E+02 (0.04526rad, 0.00272rad)	2.159E+02 (0.04422rad, 0.00265rad)	2.065E+02 (0.04317rad, 0.00259rad)	1.906E+02 (0.04147rad, 0.00249rad)	1.839E+02 (0.04080rad, 0.00245rad)	0.85936rad, 0.05156rad	
11	2.12248	4.82912	2.311E+02 (0.03155rad, 0.00189rad)	2.183E+02 (0.03074rad, 0.00184rad)	2.061E+02 (0.02990rad, 0.00179rad)	1.839E+02 (0.02825rad, 0.00169rad)	1.736E+02 (0.02741rad, 0.00164rad)	1.640E+02 (0.02659rad, 0.00160rad)	1.549E+02 (0.02578rad, 0.00155rad)	1.381E+02 (0.02416rad, 0.00145rad)	1.304E+02 (0.02337rad, 0.00140rad)	1.232E+02 (0.02260rad, 0.00136rad)	1.163E+02 (0.02183rad, 0.00131rad)	1.037E+02 (0.02035rad, 0.00118rad)	9.798E+01 (0.01965rad, 0.00114rad)	9.253E+01 (0.01895rad, 0.00114rad)	8.738E+01 (0.01827rad, 0.00110rad)	7.930E+01 (0.01726rad, 0.00104rad)	7.620E+01 (0.01691rad, 0.00101rad)	0.40353rad, 0.02320rad	
12	2.25532	5.33932	1.208E+02 (0.01649rad, 0.00099rad)	1.127E+02 (0.01587rad, 0.00095rad)	1.051E+02 (0.01525rad, 0.00091rad)	9.147E+01 (0.01405rad, 0.00084rad)	8.533E+01 (0.01347rad, 0.00081rad)	7.960E+01 (0.01291rad, 0.00077rad)	7.426E+01 (0.01236rad, 0.00074rad)	6.462E+01 (0.01130rad, 0.00068rad)	6.029E+01 (0.01080rad, 0.00065rad)	5.624E+01 (0.01032rad, 0.00062rad)	5.246E+01 (0.00985rad, 0.00059rad)	4.566E+01 (0.00892rad, 0.00054rad)	4.259E+01 (0.00854rad, 0.00051rad)	3.973E+01 (0.00814rad, 0.00049rad)	3.706E+01 (0.00775rad, 0.00046rad)	3.287E+01 (0.00715rad, 0.00043rad)	3.125E+01 (0.00693rad, 0.00042rad)	0.19010rad, 0.01140rad	
13	2.38857	5.83768	6.339E+01 (0.00865rad, 0.00052rad)	5.864E+01 (0.00826rad, 0.00050rad)	5.425E+01 (0.00787rad, 0.00047rad)	4.643E+01 (0.00713rad, 0.00043rad)	4.295E+01 (0.00678rad, 0.00041rad)	3.973E+01 (0.00644rad, 0.00039rad)	3.675E+01 (0.00612rad, 0.00037rad)	3.145E+01 (0.00550rad, 0.00033rad)	2.910E+01 (0.00521rad, 0.00031rad)	2.692E+01 (0.00494rad, 0.00030rad)	2.490E+01 (0.00467rad, 0.00028rad)	2.131E+01 (0.00418rad, 0.00025rad)	1.971E+01 (0.00395rad, 0.00024rad)	1.824E+01 (0.00374rad, 0.00022rad)	1.687E+01 (0.00353rad, 0.00021rad)	1.472E+01 (0.00320rad, 0.00019rad)	1.389E+01 (0.00308rad, 0.00018rad)	0.09725rad, 0.00560rad	
14	2.52112	6.31360	2.691E+01 (0.00367rad, 0.00022rad)	2.474E+01 (0.00348rad, 0.00021rad)	2.274E+01 (0.00330rad, 0.00020rad)	1.923E+01 (0.00295rad, 0.00018rad)	1.768E+01 (0.00279rad, 0.00017rad)	1.625E+01 (0.00263rad, 0.00016rad)	1.494E+01 (0.00249rad, 0.00015rad)	1.253E+01 (0.00221rad, 0.00013rad)	1.161E+01 (0.00208rad, 0.00012rad)	1.068E+01 (0.00196rad, 0.00012rad)	9.818E+00 (0.00184rad, 0.00011rad)	8.300E+00 (0.00163rad, 0.00010rad)	7.631E+00 (0.00153rad, 0.00009rad)	7.016E+00 (0.00144rad, 0.00009rad)	6.451E+00 (0.00135rad, 0.00008rad)	5.582E+00 (0.00121rad, 0.00007rad)	5.254E+00 (0.00117rad, 0.00007rad)	0.03773rad, 0.00227rad	
15	2.65202	6.75809	8.010E+00 (0.00109rad, 0.00007rad)	7.268E+00 (0.00102rad, 0.00006rad)	6.659E+00 (0.00097rad, 0.00006rad)	5.430E+00 (0.00083rad, 0.00005rad)	4.927E+00 (0.00078rad, 0.00005rad)	4.471E+00 (0.00072rad, 0.00004rad)	4.057E+00 (0.00068rad, 0.00004rad)	3.340E+00 (0.00058rad, 0.00003rad)	3.031E+00 (0.00054rad, 0.00003rad)	2.750E+00 (0.00050rad, 0.00003rad)	2.496E+00 (0.00047rad, 0.00003rad)	2.055E+00 (0.00040rad, 0.00002rad)	1.864E+00 (0.00037rad, 0.00002rad)	1.692E+00 (0.00035rad, 0.00002rad)	1.535E+00 (0.00032rad, 0.00002rad)	1.264E+00 (0.00028rad, 0.00002rad)	1.147E+00 (0.00025rad, 0.00002rad)	0.01015rad, 0.00062rad	
16	2.78052	7.16422	2.279E+00 (0.00031rad, 0.00002rad)	1.936E+00 (0.00027rad, 0.00002rad)	1.644E+00 (0.00024rad, 0.00002rad)	1.185E+00 (0.00018rad, 0.00001rad)	1.006E+00 (0.00016rad, 0.00001rad)	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00116rad, 0.00008rad
TOTALS																					8.18007rad, 0.50276rad

Skin dose Calculations

$(\text{Protons/cm}^2/\text{s}) \cdot (100^2 \text{cm}^2) \cdot (3600 \text{s/hr}) = \text{Protons/m}^2/\text{hr}$
 $(\text{Protons/m}^2/\text{hr}) \cdot 2 \text{m}^2 = \text{Protons/hr}$
 $\text{Protons/hr} \cdot (E \text{ MeV/Proton}) = E \text{ MeV/hr}$
 $(E \text{ MeV/hr}) \cdot (1.6 \cdot 10^{-13} / \text{MeV}) = \text{Joules/hr}$
 $(\text{Joules/hr}) / 4.5 \text{kg} = \text{Gray/hr}$
 $(\text{Gray/hr}) \cdot 100 \text{rad/Gray} = \text{rad/hr}$

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

Depth dose Calculations

$$(\text{Protons/cm}^2/\text{s}) * (100^2 \text{cm}^2) * (3600 \text{s/hr}) = \text{Protons/m}^2/\text{hr}$$

$$(\text{Protons/m}^2/\text{hr}) * 2 \text{m}^2 = \text{Protons/hr}$$

$$\text{Protons/hr} * (E \text{ MeV/Proton}) = E \text{ MeV/hr}$$

$$(E \text{ MeV/hr}) * (1.6 * 10^{-13} / \text{MeV}) = \text{Joules/hr}$$

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

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

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