

Photon and electron fluence spectra (arbitrary units) for 10 cm × 10 cm field size at an SSD of 100 cm, of clinical accelerators of the Varian Clinac C series (e.g., models 2100, 18, 1800, 2300 and iX) for the 18 MV energy and Varian Unique for the 4 MV energy. The standard uncertainty in each bin is indicated within parenthesis as a percentage of the fluence. The first column corresponds to the lower energy of the bins. Note that PENELOPE-based codes require the lower energy (in eV) of each spectral bin; EGSnrc-based codes require the upper energy (in MeV) of the bins.

Energy (MeV)	Photon spectra	
	04 MV	18 MV
0.00	0.000E+00 ()	0.000E+00 ()
0.05	1.041E-05 (8.0)	1.516E-04 (2.2)
0.10	4.396E-06 (10.1)	3.415E-04 (2.1)
0.15	3.395E-06 (14.6)	5.908E-04 (1.6)
0.20	8.666E-06 (9.8)	6.650E-04 (1.5)
0.25	2.175E-05 (5.3)	6.531E-04 (1.5)
0.30	5.550E-05 (2.8)	6.825E-04 (1.4)
0.35	1.128E-04 (1.1)	7.484E-04 (1.4)
0.40	1.914E-04 (0.9)	8.236E-04 (1.3)
0.45	2.608E-04 (0.8)	9.865E-04 (1.2)
0.50	3.343E-04 (0.7)	1.981E-03 (0.8)
0.55	3.582E-04 (0.6)	1.128E-03 (1.2)
0.60	3.898E-04 (0.7)	1.199E-03 (1.1)
0.65	4.060E-04 (0.6)	1.272E-03 (1.1)
0.70	4.128E-04 (0.7)	1.363E-03 (1.1)
0.75	4.152E-04 (0.7)	1.446E-03 (1.0)
0.80	4.142E-04 (0.7)	1.501E-03 (1.0)
0.85	4.050E-04 (0.7)	1.533E-03 (1.0)
0.90	3.975E-04 (0.7)	1.589E-03 (1.0)
0.95	3.927E-04 (0.8)	1.619E-03 (1.0)
1.00	3.786E-04 (0.8)	1.612E-03 (1.0)
1.05	3.658E-04 (0.8)	1.659E-03 (1.0)
1.10	3.554E-04 (0.8)	1.677E-03 (1.0)
1.15	3.420E-04 (0.8)	1.679E-03 (1.0)
1.20	3.278E-04 (0.8)	1.709E-03 (1.0)
1.25	3.192E-04 (0.9)	1.706E-03 (1.0)
1.30	3.064E-04 (0.9)	1.704E-03 (1.0)
1.35	2.940E-04 (0.9)	1.723E-03 (1.0)
1.40	2.842E-04 (0.9)	1.700E-03 (1.0)
1.45	2.773E-04 (1.0)	1.728E-03 (1.0)
1.50	2.624E-04 (1.0)	1.692E-03 (1.0)
1.55	2.498E-04 (1.0)	1.693E-03 (1.0)
1.60	2.374E-04 (1.0)	1.663E-03 (1.0)
1.65	2.278E-04 (1.0)	1.635E-03 (1.0)
1.70	2.178E-04 (1.0)	1.633E-03 (1.0)
1.75	2.076E-04 (1.0)	1.619E-03 (1.0)
1.80	2.014E-04 (1.1)	1.579E-03 (1.0)
1.85	1.954E-04 (1.1)	1.568E-03 (1.0)
1.90	1.882E-04 (1.2)	1.536E-03 (1.0)
1.95	1.755E-04 (1.1)	1.535E-03 (1.0)
2.00	1.700E-04 (1.2)	1.485E-03 (1.0)
2.05	1.642E-04 (1.2)	1.505E-03 (1.0)
2.10	1.587E-04 (1.2)	1.523E-03 (1.0)
2.15	1.522E-04 (1.2)	1.472E-03 (1.1)
2.20	1.430E-04 (1.2)	1.447E-03 (1.1)
2.25	1.362E-04 (1.2)	1.436E-03 (1.1)
2.30	1.325E-04 (1.2)	1.396E-03 (1.1)
2.35	1.244E-04 (1.2)	1.389E-03 (1.1)
2.40	1.203E-04 (1.3)	1.366E-03 (1.1)
2.45	1.167E-04 (1.2)	1.346E-03 (1.1)
2.50	1.118E-04 (1.2)	1.334E-03 (1.1)
2.55	1.050E-04 (1.3)	1.272E-03 (1.1)
2.60	1.025E-04 (1.4)	1.262E-03 (1.1)

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Energy (MeV)	Photon spectra	
	04 MV	18
2.65	9.654E-05 (1.4)	1.249E-03 (1.1)
2.70	9.256E-05 (1.3)	1.239E-03 (1.2)
2.75	8.839E-05 (1.5)	1.218E-03 (1.2)
2.80	8.610E-05 (1.5)	1.176E-03 (1.2)
2.85	8.052E-05 (1.5)	1.170E-03 (1.2)
2.90	7.593E-05 (1.5)	1.156E-03 (1.2)
2.95	7.251E-05 (1.5)	1.137E-03 (1.2)
3.00	6.969E-05 (1.5)	1.133E-03 (1.2)
3.05	6.558E-05 (1.5)	1.106E-03 (1.2)
3.10	6.341E-05 (1.5)	1.108E-03 (1.2)
3.15	5.972E-05 (1.6)	1.068E-03 (1.2)
3.20	5.645E-05 (1.7)	1.073E-03 (1.2)
3.25	5.371E-05 (1.7)	1.066E-03 (1.2)
3.30	5.344E-05 (1.7)	1.015E-03 (1.3)
3.35	4.955E-05 (1.8)	9.891E-04 (1.3)
3.40	4.640E-05 (1.9)	9.793E-04 (1.3)
3.45	4.245E-05 (1.9)	9.647E-04 (1.3)
3.50	4.150E-05 (2.0)	9.500E-04 (1.3)
3.55	3.824E-05 (2.0)	9.527E-04 (1.3)
3.60	3.413E-05 (2.1)	9.270E-04 (1.3)
3.65	3.279E-05 (2.2)	9.249E-04 (1.3)
3.70	2.942E-05 (2.3)	9.207E-04 (1.4)
3.75	2.579E-05 (2.5)	9.011E-04 (1.4)
3.80	2.212E-05 (2.6)	8.789E-04 (1.4)
3.85	1.984E-05 (2.9)	8.618E-04 (1.4)
3.90	1.594E-05 (3.1)	8.532E-04 (1.4)
3.95	1.162E-05 (3.8)	8.467E-04 (1.4)
4.00	3.139E-06 (7.8)	8.264E-04 (1.4)
4.05	-	8.179E-04 (1.4)
4.10	-	7.966E-04 (1.5)
4.15	-	7.964E-04 (1.5)
4.20	-	7.998E-04 (1.5)
4.25	-	7.580E-04 (1.5)
4.30	-	7.631E-04 (1.5)
4.35	-	7.329E-04 (1.5)
4.40	-	7.184E-04 (1.5)
4.45	-	7.039E-04 (1.6)
4.50	-	7.291E-04 (1.5)
4.55	-	6.917E-04 (1.6)
4.60	-	6.905E-04 (1.6)
4.65	-	6.833E-04 (1.6)
4.70	-	6.709E-04 (1.6)
4.75	-	6.523E-04 (1.6)
4.80	-	6.586E-04 (1.6)
4.85	-	6.379E-04 (1.6)
4.90	-	6.461E-04 (1.6)
4.95	-	6.318E-04 (1.6)
5.00	-	6.158E-04 (1.7)
5.05	-	6.224E-04 (1.7)
5.10	-	6.080E-04 (1.7)
5.15	-	6.151E-04 (1.7)
5.20	-	5.725E-04 (1.7)
5.25	-	5.680E-04 (1.7)
5.30	-	5.617E-04 (1.7)
5.35	-	5.546E-04 (1.8)
5.40	-	5.681E-04 (1.7)
5.45	-	5.503E-04 (1.8)
5.50	-	5.448E-04 (1.8)
5.55	-	5.553E-04 (1.8)

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Energy (MeV)	Photon spectra	
	04 MV	18
5.60	-	5.361E-04 (1.8)
5.65	-	5.387E-04 (1.8)
5.70	-	5.247E-04 (1.8)
5.75	-	5.113E-04 (1.8)
5.80	-	4.982E-04 (1.9)
5.85	-	4.797E-04 (1.9)
5.90	-	4.966E-04 (1.9)
5.95	-	4.798E-04 (1.9)
6.00	-	4.683E-04 (1.9)
6.05	-	4.699E-04 (1.9)
6.10	-	4.605E-04 (1.9)
6.15	-	4.567E-04 (1.9)
6.20	-	4.427E-04 (2.0)
6.25	-	4.449E-04 (2.0)
6.30	-	4.422E-04 (2.0)
6.35	-	4.404E-04 (2.0)
6.40	-	4.231E-04 (2.0)
6.45	-	4.147E-04 (2.0)
6.50	-	4.112E-04 (2.0)
6.55	-	4.136E-04 (2.0)
6.60	-	4.023E-04 (2.1)
6.65	-	4.092E-04 (2.1)
6.70	-	3.938E-04 (2.1)
6.75	-	3.927E-04 (2.1)
6.80	-	3.808E-04 (2.1)
6.85	-	3.843E-04 (2.1)
6.90	-	3.807E-04 (2.1)
6.95	-	3.703E-04 (2.2)
7.00	-	3.725E-04 (2.2)
7.05	-	3.682E-04 (2.2)
7.10	-	3.591E-04 (2.2)
7.15	-	3.580E-04 (2.2)
7.20	-	3.520E-04 (2.2)
7.25	-	3.562E-04 (2.2)
7.30	-	3.417E-04 (2.3)
7.35	-	3.533E-04 (2.2)
7.40	-	3.388E-04 (2.3)
7.45	-	3.227E-04 (2.3)
7.50	-	3.292E-04 (2.3)
7.55	-	3.379E-04 (2.3)
7.60	-	3.150E-04 (2.4)
7.65	-	3.217E-04 (2.3)
7.70	-	3.091E-04 (2.4)
7.75	-	3.185E-04 (2.3)
7.80	-	2.949E-04 (2.4)
7.85	-	3.073E-04 (2.4)
7.90	-	2.949E-04 (2.4)
7.95	-	3.056E-04 (2.4)
8.00	-	2.942E-04 (2.4)
8.05	-	2.934E-04 (2.4)
8.10	-	2.784E-04 (2.5)
8.15	-	2.892E-04 (2.5)
8.20	-	2.891E-04 (2.5)
8.25	-	2.912E-04 (2.5)
8.30	-	2.619E-04 (2.6)
8.35	-	2.673E-04 (2.5)
8.40	-	2.509E-04 (2.6)
8.45	-	2.752E-04 (2.5)
8.50	-	2.560E-04 (2.6)

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Energy (MeV)	Photon spectra	
	04 MV	18
8.55	-	2.681E-04 (2.6)
8.60	-	2.592E-04 (2.6)
8.65	-	2.521E-04 (2.6)
8.70	-	2.443E-04 (2.7)
8.75	-	2.639E-04 (2.6)
8.80	-	2.473E-04 (2.6)
8.85	-	2.481E-04 (2.6)
8.90	-	2.302E-04 (2.7)
8.95	-	2.377E-04 (2.7)
9.00	-	2.333E-04 (2.7)
9.05	-	2.395E-04 (2.7)
9.10	-	2.384E-04 (2.7)
9.15	-	2.353E-04 (2.7)
9.20	-	2.149E-04 (2.8)
9.25	-	2.169E-04 (2.8)
9.30	-	2.301E-04 (2.8)
9.35	-	2.203E-04 (2.8)
9.40	-	2.281E-04 (2.8)
9.45	-	2.030E-04 (2.9)
9.50	-	2.062E-04 (2.9)
9.55	-	2.178E-04 (2.8)
9.60	-	2.041E-04 (2.9)
9.65	-	1.983E-04 (2.9)
9.70	-	2.055E-04 (2.9)
9.75	-	1.981E-04 (3.0)
9.80	-	1.988E-04 (3.0)
9.85	-	2.006E-04 (3.0)
9.90	-	1.918E-04 (3.0)
9.95	-	1.964E-04 (3.0)
10.00	-	1.969E-04 (3.0)
10.05	-	1.881E-04 (3.0)
10.10	-	1.870E-04 (3.1)
10.15	-	1.751E-04 (3.2)
10.20	-	1.926E-04 (3.0)
10.25	-	1.798E-04 (3.1)
10.30	-	1.773E-04 (3.2)
10.35	-	1.789E-04 (3.1)
10.40	-	1.839E-04 (3.1)
10.45	-	1.765E-04 (3.2)
10.50	-	1.700E-04 (3.2)
10.55	-	1.748E-04 (3.2)
10.60	-	1.727E-04 (3.2)
10.65	-	1.646E-04 (3.2)
10.70	-	1.698E-04 (3.2)
10.75	-	1.698E-04 (3.2)
10.80	-	1.605E-04 (3.3)
10.85	-	1.528E-04 (3.4)
10.90	-	1.611E-04 (3.3)
10.95	-	1.621E-04 (3.3)
11.00	-	1.613E-04 (3.3)
11.05	-	1.599E-04 (3.3)
11.10	-	1.572E-04 (3.3)
11.15	-	1.560E-04 (3.4)
11.20	-	1.493E-04 (3.4)
11.25	-	1.484E-04 (3.4)
11.30	-	1.496E-04 (3.4)
11.35	-	1.628E-04 (3.3)
11.40	-	1.417E-04 (3.5)
11.45	-	1.426E-04 (3.5)

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Energy (MeV)	Photon spectra	
	04 MV	18
11.50	-	1.465E-04 (3.5)
11.55	-	1.442E-04 (3.5)
11.60	-	1.372E-04 (3.6)
11.65	-	1.411E-04 (3.5)
11.70	-	1.347E-04 (3.6)
11.75	-	1.370E-04 (3.6)
11.80	-	1.395E-04 (3.6)
11.85	-	1.301E-04 (3.7)
11.90	-	1.414E-04 (3.5)
11.95	-	1.320E-04 (3.7)
12.00	-	1.289E-04 (3.7)
12.05	-	1.270E-04 (3.7)
12.10	-	1.245E-04 (3.7)
12.15	-	1.290E-04 (3.7)
12.20	-	1.259E-04 (3.7)
12.25	-	1.144E-04 (3.9)
12.30	-	1.195E-04 (3.8)
12.35	-	1.236E-04 (3.8)
12.40	-	1.239E-04 (3.8)
12.45	-	1.132E-04 (3.9)
12.50	-	1.203E-04 (3.8)
12.55	-	1.208E-04 (3.8)
12.60	-	1.163E-04 (3.9)
12.65	-	1.193E-04 (3.9)
12.70	-	1.171E-04 (3.9)
12.75	-	1.248E-04 (3.8)
12.80	-	1.141E-04 (3.9)
12.85	-	1.108E-04 (4.0)
12.90	-	1.113E-04 (4.0)
12.95	-	1.043E-04 (4.1)
13.00	-	1.166E-04 (3.9)
13.05	-	1.012E-04 (4.1)
13.10	-	1.042E-04 (4.1)
13.15	-	1.017E-04 (4.2)
13.20	-	1.052E-04 (4.1)
13.25	-	1.054E-04 (4.1)
13.30	-	1.012E-04 (4.2)
13.35	-	1.005E-04 (4.2)
13.40	-	9.073E-05 (4.4)
13.45	-	9.287E-05 (4.4)
13.50	-	9.812E-05 (4.2)
13.55	-	9.871E-05 (4.2)
13.60	-	9.265E-05 (4.4)
13.65	-	8.777E-05 (4.5)
13.70	-	8.765E-05 (4.5)
13.75	-	8.800E-05 (4.5)
13.80	-	8.496E-05 (4.5)
13.85	-	8.893E-05 (4.4)
13.90	-	8.240E-05 (4.6)
13.95	-	8.696E-05 (4.5)
14.00	-	8.668E-05 (4.5)
14.05	-	8.805E-05 (4.5)
14.10	-	8.816E-05 (4.5)
14.15	-	8.479E-05 (4.6)
14.20	-	8.820E-05 (4.5)
14.25	-	8.245E-05 (4.6)
14.30	-	7.903E-05 (4.7)
14.35	-	7.952E-05 (4.7)
14.40	-	7.864E-05 (4.7)

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Energy (MeV)	Photon spectra	
	04 MV	18
14.45	-	7.341E-05 (4.9)
14.50	-	7.955E-05 (4.7)
14.55	-	7.496E-05 (4.8)
14.60	-	7.676E-05 (4.8)
14.65	-	7.583E-05 (4.8)
14.70	-	6.968E-05 (5.0)
14.75	-	7.792E-05 (4.8)
14.80	-	6.800E-05 (5.1)
14.85	-	7.141E-05 (5.0)
14.90	-	6.233E-05 (5.3)
14.95	-	7.101E-05 (5.0)
15.00	-	7.268E-05 (4.9)
15.05	-	6.763E-05 (5.1)
15.10	-	6.625E-05 (5.2)
15.15	-	6.232E-05 (5.3)
15.20	-	5.929E-05 (5.4)
15.25	-	6.869E-05 (5.1)
15.30	-	6.912E-05 (5.0)
15.35	-	6.611E-05 (5.2)
15.40	-	6.545E-05 (5.2)
15.45	-	5.816E-05 (5.5)
15.50	-	6.515E-05 (5.3)
15.55	-	6.341E-05 (5.3)
15.60	-	6.069E-05 (5.4)
15.65	-	6.372E-05 (5.2)
15.70	-	5.517E-05 (5.6)
15.75	-	5.836E-05 (5.5)
15.80	-	5.475E-05 (5.8)
15.85	-	5.105E-05 (5.9)
15.90	-	5.512E-05 (5.6)
15.95	-	5.227E-05 (5.7)
16.00	-	5.177E-05 (5.8)
16.05	-	4.805E-05 (6.0)
16.10	-	5.264E-05 (5.8)
16.15	-	4.621E-05 (6.2)
16.20	-	5.312E-05 (5.8)
16.25	-	4.455E-05 (6.2)
16.30	-	4.680E-05 (6.2)
16.35	-	4.789E-05 (6.1)
16.40	-	4.939E-05 (6.0)
16.45	-	4.659E-05 (6.2)
16.50	-	4.053E-05 (6.7)
16.55	-	4.161E-05 (6.4)
16.60	-	4.127E-05 (6.6)
16.65	-	4.347E-05 (6.4)
16.70	-	4.427E-05 (6.4)
16.75	-	4.040E-05 (6.6)
16.80	-	3.415E-05 (7.2)
16.85	-	3.327E-05 (7.2)
16.90	-	3.221E-05 (7.4)
16.95	-	3.133E-05 (7.5)
17.00	-	3.368E-05 (7.3)
17.05	-	3.499E-05 (7.1)
17.10	-	2.840E-05 (7.8)
17.15	-	2.805E-05 (8.1)
17.20	-	2.420E-05 (8.5)
17.25	-	2.317E-05 (8.7)
17.30	-	2.177E-05 (9.1)
17.35	-	2.241E-05 (8.9)

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Energy (MeV)	Photon spectra	
	04 MV	18
17.40	-	2.103E-05 (9.2)
17.45	-	1.944E-05 (9.5)
17.50	-	1.648E-05 (10.3)
17.55	-	1.648E-05 (10.4)
17.60	-	1.725E-05 (10.1)
17.65	-	1.735E-05 (10.2)
17.70	-	1.537E-05 (10.7)
17.75	-	1.044E-05 (13.1)
17.80	-	1.081E-05 (13.0)
17.85	-	9.240E-06 (13.8)
17.90	-	7.907E-06 (15.0)
17.95	-	5.280E-06 (18.4)
18.00	-	1.173E-06 (40.2)