

Computed Tomography Beam Quality/Half-Value Layer

Date: 6-Jul-22
POC: Dr Who
Phone #: 555-555-5555
Physicist: Dr You

Facility: Imaging R Us.
Facility Location: Somewhere
Scanner Make/Model: GE LightSpeed 16 RT
Scanner ID/No.: 00000000

Scanning Technique

Electrometer: ItWorks
Calibration Due Date: 6-Jun-22
CT Ionization Chamber: 100-mm pencil type
Calibration Due Date: 6-Jun-22

Scan Protocol: T-Spine
Bowtie Filter: Large
Slice Thickness [mm]: 5
mAs: 350

ΔX_n	[mm Al]	I_n	[mGy or mR]			
			80 kVp	100 kVp	120 kVp	140 kVp
ΔX_0	0.00	I_0	1.5653	2.8858	4.5579	6.5457
ΔX_1	3.94	I_1	1.1342	2.2916	3.8043	5.6659
ΔX_2	5.95	I_2	0.9577	2.0301	3.4663	5.2497
ΔX_3	7.94	I_3	0.8240	1.8207	3.1841	4.8854
ΔX_4	9.95	I_4	0.7176	1.6453	2.9334	4.5560
ΔX_5	11.94	I_5	0.6228	1.4846	2.6847	4.2442
ΔX_6	13.94	I_6	0.5535	1.3371	2.4750	3.9523
ΔX_7	15.94	I_7	0.4868	1.2142	2.2708	3.6816
ΔX_8	17.92	I_8	0.4319	1.1036	2.1090	3.4388
ΔX_9	19.92	I_9	0.3866	1.0021	1.9478	3.2080
ΔX_{10}	21.90	I_{10}	0.3542	0.9219	1.7956	3.0056

Broad-Beam HVL [mm of Al eq.]:	8.69	12.48	15.86	19.34
Mass Energy-Absorption Coefficient [cm²/g, in Al]:	0.2944	0.2049	0.1613	0.1322
Effective Energy [keV]:	42.73	48.21	52.31	56.10
Narrow-Beam HVL [mm of Al eq.]:	5.17	6.51	7.50	8.36
Mass Attenuation Coefficient [cm²/g, in Al]:	0.4951	0.3926	0.3412	0.3058

*Density for aluminum 1100 alloy = 2.71 g/cm³