

Manufacturer's Recommendations for Alternate Dental CBCT QA Program

Xoran: Model MiniCat

Table 6

Medical Physicist's Computed Tomography QC Survey

Item	Required Test or Procedure	Frequency	Substitute Test or Procedure	Standard
1	Scan Increment Accuracy	Initial Annually	None – Not Applicable	None – Not Applicable
2	Scan Localization Light Accuracy	Initial & Annually	User Manual, Laser Accuracy, Section 11.1, Pages 161-162, Appendix C	Laser must align properly with alignment stickers on perimeter of x-ray detector.
3	Patient Dose (Multiple Scan Average Dose) MSAD or Computed Tomography Dose Index-CTDI	Initial & Annually	User Manual, Imaging Properties and Dose Information, Section 10.2, Pages 96-135, Appendix B	± 30% of the maximum deviation compared with the values that could be measured from Dose Information
4	Pre-Patient Collimation Accuracy	Initial & Annually	User Manual, Technical Specifications, Section 10.0, Pages 98 – 134, Appendix B	Sinus 20s (600): 189 mm Sinus 10s (300): 189 mm Sinus 10s (150): 189 mm Sinus 40s (600): 189 mm Sinus 20s (300): 189 mm Sinus 10s (150): 189 mm T bone 20s (600): 105 mm T Bone 40s (600): 105 mm
5	Contrast Scale	Initial & Annually	User Manual, CT Number of Reference Materials, Section 11.2, Pages 162-163, Appendix C	Air -1000 to -650 HU Teflon > 500 HU Acrylic 50 to 250 HU LDPE -200 to 0 HU
6	CT Number For Water	Initial & Annually	User Manual, CT Number and Standard Deviation of Water, Section 11.4, Pages 165-166, Appendix C	Mean ± 100 HU Water STD ≤ 30
7	Slice Thickness	Initial & Annually	User Manual, Nominal Tomographic Section Thickness and Slice Sensitivity Profile Section 11.9, Pages 175-176, Appendix E	Sinus 20s (600) 0.494 to 0.589 Sinus 10s (300) 0.476 to 0.618 Sinus 10s (150) 0.406 to 0.665 T Bone 20s (600) 0.489 to 0.574
8	Field Uniformity	Initial & Annually	User Manual, Uniformity Test, Section 11.6, Pages 167-168, Appendix C	Compare the mean values of each region. Total range for mean values must be within or equal to ± 50 HU.

9	Low Contrast Resolution	Initial & Annually	User Manual, Low Contrast, Section 11.3, Page 165 Appendix C	Greater or equal to 4 low contrast targets that should be distinguishable. Front laser should hit the center of the head rest and/or gantry.
10	High Contrast Resolution	Initial & Annually	User Manual, Spatial Resolution, Section 11.3 Pages 163-165 Appendix C	The line pair of 15 lp/cm should be distinguishable.
11	Noise	Initial & Annually	User Manual , Image Noise, Section 11.8, Pages 174-175, Appendix D	Sinus 20s (600): 1.88 to 3.87 Sinus 10s (300): 2.69 to 7.04 Sinus 10s (150): 4.49 to 9.69 T Bone 20s (600): 3.54 to 7.91
12	Scan Protocol Review	Initial & Annually	Same as NJAC 22.10(a)	Same as NJAC 22.10(a)
13	Review of Facility and Technologists QC Tests	Initial & Annually	Same as NJAC 22.10(a)	Same as NJAC 22.10(a)
14	Physicist Report and Recommendations	Initial & Annually	Same as NJAC 22.10(a)	Same as NJAC 22.10(a)