Manufacturer's Recommendations for Alternate Dental CBCT QA Program

Imaging Sciences International: Model I-CAT FLX

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	Technical Manual Chapter 3: Geometric Calibration Page 3-4 (Appendix E)	Using the Alignment Lasers, align the GeoCal fixture crosshair slits with the laser cross beams. The laser beams should roughly align with the fixture crosshair slits.
3	Patient Dose (Multiple Scan Average Dose) MSAD or Computed Tomography Dose Index-CTDI	Initial & Annually	Technical Guide Dose and Sensitivity Profile Pages C-11 & C-12 (Appendix A)	Reference dose information provided only. *To be established by Medical Physicist
4	Pre-Patient Collimation Accuracy	Initial & Annually	Technical Guide Chapter 3: Shutter Calibration Page 3-3 (Appendix B)	Pass computerized test of Shutter Calibration
5	Contrast Scale	Initial & Annually	Technical Guide Chapter 3: QA Material Test Pages 3-10 to 3-13 (Appendix C)	Lower and Upper Limit Scan Values in Hounsfield Units. Air = (-1000 to -980) Acrylic = (-50 to 200) LDPE = (-250 to -50) Teflon = (580 to 1160)
6	CT Number for Water	Initial & Annually	Technical Guide Chapter 3: QA Air Water Test Pages 3-14 to 3-18 (Appendix C)	Water Expected Value = 0 HU Range= (-70 to 70) HU
7	Slice Thickness	Initial & Annually	None- Not Applicable	None- Not Applicable
8	Field Uniformity	Initial & Annually	Technical Guide Chapter 3: Uniformity Evaluation Pages 3-18 & 3-19 (Appendix C)	Subtract each mean value from the mean value of the center measurement. If the difference is greater than 90, make sure phantom is correctly centered in FOV and re-measure.
9	Low Contrast Resolution	Initial & Annually	QA test to be performed using appropriate Low Contrast phantom. * Low Contrast phantom is not provided by Imaging Sciences International	*To be established by Medical Physicist
10	High Contrast Resolution	Initial & Annually	Technical Guide Chapter 3: QA Line Pair Evaluation Pages 3-7 to 3-9 (Appendix D)	Verify the definition is present within line pairs 10, 11 and 12.
11	Noise	Initial &	Technical Guide	Water Expected Value = 0;

		Annually	Chapter 3: Noise Level Evaluation Pages 3-16 to 3-18 (Appendix C)	Range = (-70 to +70) HU Air Expected Value= -1000 HU Range = (-1000 to -950) HU
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)

*Where no performance standard is identified or expressed by the manufacture, the medical physicist shall establish the standard for the facility's CBCT unit with justification.