Manufacturer's Recommendations for Alternate Dental CBCT QA Program
Acteon Group: Model X-Mind Trium
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	X-Mind Trium Service Manual 13.1 Adjustment of the Lasers Pages: 139, 144, 145, 150 to 155 (Appendix C) X-Mind Trium User Manual 11.10 Laser Page: 60 (Appendix B)	< 1mm
3	Patient Dose (Multiple Scan Average Dose) MSAD or Computed Tomography Dose Index-CTDI	Initial & Annually	X-Mind Trium User Manual 11.16.2. Dosimetric Indications Pages: 63 to 81 (Appendix B)	See reference dose tables.
4	Pre-Patient Collimation Accuracy	Initial & Annually	X-Mind Trium Service Manual 12.7. Motorized Collimation Calibration Pages: 106 to 113 (Appendix C)	Repeat steps from h to l until the X-ray beam covers correctly the image detector.
5	Contrast Scale	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.3. Contrast to Noise Ratio (CNR) 5.2.5. Modular Transfer Function Pages: 5 to 21, 23 to 25, 27 (Appendix A)	Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 CNR > 5.0 $V_{10\%}$ [LP/mm} > 1.6 $V_{50\%}$ [LP/mm} > 0.5 Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90

				CNR > 4.0
				$V_{10\%}$ [LP/mm}: > 1.5
				$V_{50\%}$ [LP/mm}: > 0.4
6	CT Number for Water	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.4 Homogeneity Pages: 5 to 19, 22, 23 & 27 (Appendix A)	The software computes automatically the homogeneity value. Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 Homogeneity > 12 Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90 Homogeneity > 10
7	Slice Thickness	Initial & Annually	None – Not Applicable	None – Not Applicable
8	Field Uniformity	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.4 Homogeneity Pages: 5 to 19, 22, 23 &27 (Appendix A)	The software computes automatically the homogeneity value. Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 Homogeneity > 12 Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90 Homogeneity > 10
9	Low Contrast Resolution	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.3. Contrast to Noise Ratio (CNR) Pages: 5 to 21, 27 (Appendix A)	Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 CNR > 5.0

				Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90 CNR > 4.0
10	High Contrast Resolution	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.5. Modular Transfer Function Pages: 5 to 19, 23 to 25, 27 (Appendix A)	Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 $V_{10\%}$ [LP/mm} > 1.6 $V_{50\%}$ [LP/mm} > 0.5 Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90 $V_{10\%}$ [LP/mm}: > 1.5 $V_{50\%}$ [LP/mm}: > 0.4
11	Noise	Initial & Annually	X-Mind Trium Quality Assessment Manual 5. CBCT Quality Check 5.2.3. Contrast to Noise Ratio (CNR) Pages: 5 to 21, 27 (Appendix A)	Trium: Man-Medium, Medium Quality, FOV 80x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 80x90 CNR > 5.0 Trium: Man-Medium, Medium Quality, FOV 110x80 OR Trium TLD: Man-Medium, Medium Quality, FOV 110x90 CNR > 4.0
12	Scan Protocol Review	Initial & Annually	See N.J.A.C. 7:28-22.10(a)	N.J.A.C. 7:28-22.10(a)
13	Review of Facility and Technologist's QC Tests	Initial & Annually	See N.J.A.C. 7:28-22.10(a)	N.J.A.C. 7:28-22.10(a)
14	Physicist Report and Recommendations	Initial & Annually	See N.J.A.C. 7:28-22.10(a)	N.J.A.C. 7:28-22.10(a)