Manufacturer's Recommendations for Alternate Dental CBCT QA Program

Planmeca: ProMax 3D Max, 3D, 3Ds, and 3D Mid:

Table 6 Medical Physicist's Computed Tomography QC Survey

Item	Required Test or Procedure	Frequency	Planmeca Substitute Test or Procedure	Standard
1	Scan Increment Accuracy	None	None – Not Applicable	None – Not Applicable
2	Scan Localization Light Accuracy	Initial & annually	CBCT Alternative QA Test for Planmeca (Appendix F)	+/- 5 mm
3	Patient Dose (Multiple Scan Average Dose) MSAD or Computed Tomography Dose Index-CTDI	Initial & annually	ProMax Technical Manual, Chapter A, Section 6d (Appendix D)	Maximum Deviation of reference dose = +/- 20% **Reference Dose & Dose Range:** ProMax 3D Max (96 kVp / 10 mA): CTDI100(center) = 15.00 mGy; Dose Range = (12 to 18 mGy) **Reference Dose & Dose Range:** At 90 kVp, 10 mA, normal exposure mode. ProMax 3D Mid: CTDI100(center) =9.59 mGy; Dose Range = (7.67 to 11.51 mGy) ProMax 3D: CTDI100(center) = 9.29 mGy; Dose Range = (7.43 to 11.15 mGy) ProMax 3D s: CTDI100(center) = 8.27mGy; Dose Range = (6.61 to 9.92 mGy)
4	Pre-Patient Collimation Accuracy	Initial & annually	DIN 6868-161, 2012-03, Section 4.3.2.1, Page: 11 (Appendix E)	Alignment of the useful beam and detector surface: **If Beam ≥ 8 cm**; Error ≤ 2 % SID in one direction; or ≤ 3% SID in two directions; **If Beam < 8cm**; Max size ≤ 1% SID in one direction; or ≤ 2% SID in two directions.
5	Contrast Scale	Initial & annually	Appendix 1 - 3D Quality Assurance (Q/A) Test (Appendix C)	HU Units for Various Materials: Acryl: Range= -400 to 400 HU Aluminum: Range =1000 to 2500 HU

				Air: Should never be lower than -1000 HU
6	CT Number for Water	Initial & annually	CBCT Alternative QA Test (Water Phantom) for Planmeca (Appendix B) Planmeca Quality Test Procedure – CT Number for Water (Acryl) Pages: 1 to 7 (Appendix G)	HU Range = -150 to +150 OR Acryl HU Tolerance: -200.00 – 200.00
7	Slice Thickness	None	None- Not Applicable	None- Not Applicable
8	Field Uniformity	Initial & annually	Device Tool QA DIN6868 Pages: 7 & 20; (Appendix A) DIN Standard 6868-161:2012-3 section 4.3.7.1 Page: 14 (Appendix E) Planmeca Quality Test Procedure – CT Number for Water (Acryl) Pages: 1 to 7 (Appendix G)	Homogeneity > 5 OR Acryl Uniformity Tolerance: < 50.00
9	Low Contrast Resolution	Initial & annually	QA test to be performed using appropriate Low Contrast phantom. Low contrast test phantom is not supplied by Planmeca.	To be established by Medical Physicist *
10	High Contrast Resolution	Initial & annually	QA Qualification Testing Procedure Pages: 1 to 3 (Appendix C)	The 10% MTF value (MTF10) should be above 1.00 lp/mm
11	Noise	Initial & annually	QA Qualification Testing Procedure Pages: 1 to 3 (Appendix C)	Noise values (STD) should be < 500 HU for acryl and aluminum
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 Technologists 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)