

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)	<p>Maximum Deviation of reference dose = +/- 20%</p> <p>Reference Dose & Dose Range: ProMax 3D Max (96 kVp / 10 mA): $CTDI_{100(\text{center})} = 15.00$ mGy; Dose Range = (12 to 18 mGy)</p> <p>Reference Dose & Dose Range: At 90 kVp, 10 mA, normal exposure mode. ProMax 3D Mid: $CTDI_{100(\text{center})} = 9.59$ mGy; Dose Range = (7.67 to 11.51 mGy) ProMax 3D: $CTDI_{100(\text{center})} = 9.29$ mGy; Dose Range = (7.43 to 11.15 mGy) ProMax 3D s: $CTDI_{100(\text{center})} = 8.27$ mGy; Dose Range = (6.61 to 9.92 mGy)</p>
4	Pre-Patient Collimation Accuracy	Initial & annually	DIN 6868-161, 2012-03, Section 4.3.2.1, page 11 (Appendix E)	<p>Alignment of the useful beam and detector surface:</p> <p>If Beam \geq 8 cm; Error \leq 2 % SID in one direction;</p>

				or $\leq 3\%$ SID in two directions; If Beam < 8cm; Max size $\leq 1\%$ SID in one direction; or $\leq 2\%$ 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)	HU Range = -150 to +150
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)	Homogeneity >5
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 1-3 (Appendix C)	The 10% MTF value (MTF10) should be above 1.00 lp/mm
11	Noise	Initial & annually	QA Qualification Testing Procedure Pages 1-3 (Appendix C)	Noise values (STD) should be < 500 HU for acryl and aluminum
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)