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CAD software technical requirements of fixed dental restoration

口腔固定修复（CAD）软件技术要求

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CAD software technical requirements of fixed dental restoration

1 Scope

This Standard specifies the terms and definitions, technical requirements, test methods and other requirements for CAD software for fixed dental restoration.

This Standard applies to the design, development and application of CAD software for fixed dental restoration.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition dated applies to this document. For undated references, the latest edition of the referenced documents (including all amendments) applies to this Standard.

GB/T 9937 (all parts), *Dental vocabulary*

GB/T 25000.51-2016, *Systems and software engineering – Systems and software quality requirements and evaluation (SQuARE) – Part 51: Requirements for quality of ready to use software product(RUSP) and instructions for testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions, and those defined in GB/T 9937, apply.

3.1

fixed dental restoration

An artificially made restoration to replace and/or restore part or all defective, missing natural teeth, which patients can't remove or wear by themselves.

3.2

CAD software for fixed dental restoration

A special software system with which an efficient, high-precision fixed dental restoration digital model design can be fulfilled, in the human-computer interactive operating mode, based on the digital dental impression established after the

inlay

A restoration which is inlaid in tooth to restore the shape and function of defective tooth.

4 Operating environment

4.1 Provision of hardware

The hardware shall be provided as follows:

- a) above P4-2.0 and its PC;
- b) memory more than 1 GB;
- c) mouse and keyboard;
- d) 24-speed CD-ROM or DVD-ROM drive or equivalent input interface;
- e) dental model three-dimensional scanner or intraoral three-dimensional scanner.

4.2 Provision of software

The software shall be provided as follows:

- a) operating system of Windows XP and above;
- b) edition of OpenGL 2.0 and above.

5 Technical Requirements

5.1 Operating interface

5.1.1 Operating interface of the software shall have a Chinese interface at least; an English interface can also be added if necessary.

5.1.2 The software operating process storage file names shall be file names named in Chinese or time; English storage file names can also be provided if necessary.

5.1.3 The software shall support the retrieval of Chinese file names; the retrieval of English file names can also be provided if necessary.

5.1.4 The terminology used in the software shall be consistent with the terminology of GB/T 9937 and this Standard.

5.2 Performance requirements

5.2.1 In accordance with the method of Annex A, when using the even-thickness coping/bridge function of the software to design coping/bridge of standard preparation,

6 Test methods

6.1 Operating interface test

Run the software system; check the operating interface.

6.2 Performance requirement test

6.2.1 Prepare standard preparation according to the method of Annex A; use the software to be tested to design even-thickness coping/bridge thickened by 0.6 mm; use a third-party measuring software to cut section evenly (perpendicular to the rotation center direction of base crown model with an interval of 5°); extract the cervical margin line intersection point together with the software to be tested; measure the average of differences between the intersection point and the design curve.

6.2.2 Operators use a stopwatch for measurement; start from the end of scanned single base crown data input and end at the end of design data output; they shall use the functions of even-thickness coping/bridge and cut-back coping/bridge to conduct measurements separately; record the results.

6.3 Function requirement test

6.3.1 Run the software for actual operation to check whether it has the functions including patient information management and tooth position management.

6.3.2 Run the software for actual operation to check whether it has a guided design process and has a backspace function.

6.3.3 Run the software for actual operation to check whether its input-output files include the standard STL data file format at least.

6.3.4 Run the software for actual operation to check whether it has the function of automatic calculation of an optimal path of insertion.

6.3.5 Run the software for actual operation to check whether it has the functions including undercut amount prompt and filling undercut.

6.3.6 Run the software for actual operation to check whether it has the functions including automatic or semi-automatic extraction of preparation cervical margin line, and cervical margin interactive modification.

6.3.7 Run the software for actual operation to check whether it has the function of regional parametric adjustment of thickness of adhesive and crown.

6.3.8 Run the software for actual operation to check whether it has the function of restoration thickness prompt and the function of automatically adding to minimum thickness.

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