Dental Scan Requirements

AUTHOR YJ| **DATE** 10 September 2021 | **REVISION** 2.0

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CHANGE NOTES

VERSION	DATE	INITIALS	CHANGE DETAILS
1.0	10/09/2021	YJ	Initial Document
V1.1	19/02/2026	YJ / MW	Added Appendix 1: Scanner Validation
V2.0	29/04/2026	YJ	Added Lower, left and right bite registration

INTRODUCTION

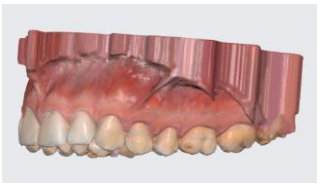
This document describes the minimum requirements of a dental scan required by HITIQ. Our instrumented sports mouthguards are built from a 3D scanned and printed model of the athletes' maxillary dentition. Similarly, to polyvinyl/alginate impressions, we require accurate and extensive soft and hard tissue information to form a safe and effective mouthguard.

1. Instructions

1. In order to capture as much of the dentition as possible, wipe away any obvious saliva, plaque or food debris with gauze as this can create positive space and affect the fit and retention of the mouthguard.
2. The guard will seat back to and including the first molar (AUS: 16 & 26) (USA: 3 & 14), please capture as much of the 2nd molar as possible, wisdom teeth are not but a complete scan is appreciated.
3. A full scan of the palate is not required but at least 5mm from cervical margins at posterior teeth and as much of the anterior 3rd of the hard palate is appreciated (see image above).
4. On the buccal/facial side of the scan, retract the lips and cheeks to capture as much of the sulcus and frenum attachments as possible back to the first molar. The mouthguard will extend up to the labial sulcus to provide protection for the athlete.

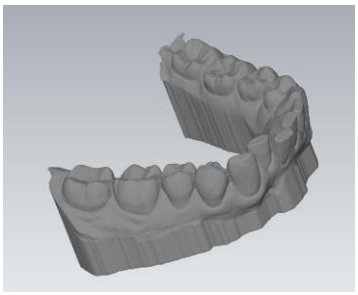



5. Some frenulum/frenum attach lower than others which can interfere with the design of the smart mouthguard if not captured accurately. As well as any boney protrusions or abnormalities (tori etc).

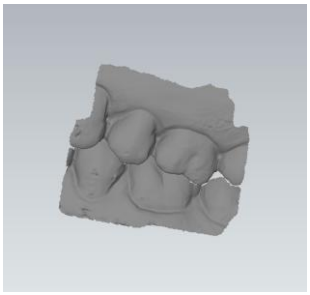


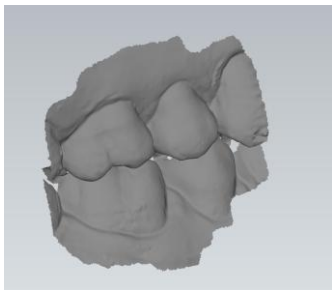


6. If requested by HITIQ - Capture lower



7. If requested by HITIQ - Capture left and right bite registration



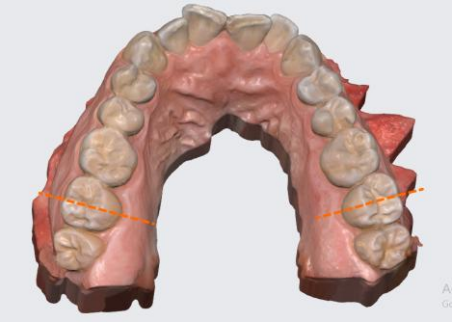
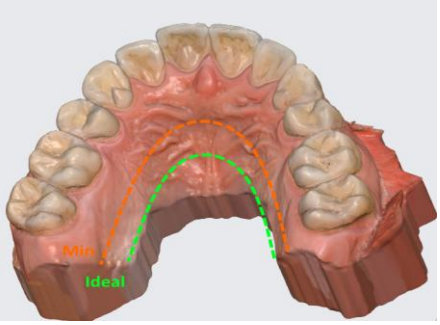
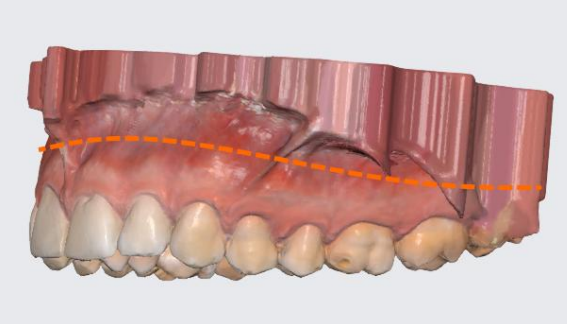
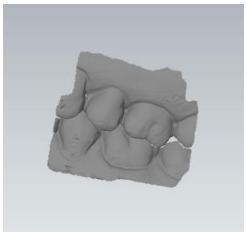
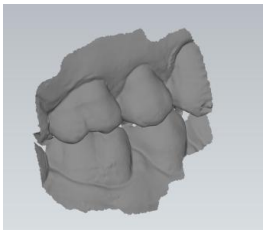
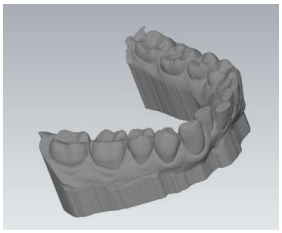


8. When saving the scans, please do the following:
    a. as STL files, please label with Athlete's full name.
    b. Save as a solid model on a 5mm base, as images above, if possible. Shell is fine but does create more work when editing and post processing prior to being printed.

You may share the scans via our iTero account, send a share link to dental-lab@hitiq.com or HITIQ can provide a link to a shared drive location.

Laboratory Name	Email
HitIQ	dental-lab@hitiq.com

2. QA Checklist

#	Requirement	Example
1	At least 50% of the 2nd molar captured in scan	
2	Palatal area captured: Scan captures at least 5mm from cervical margins at posterior teeth	
3	Buccal/facial side: Scan captures at least up to the labial sulcus	
4	Lower dentition and left and right bite registration captured	  
5	Saved as STL	
6	Saved as solid	

APPENDIX 1: Scanner Validation

To validate a scanner system not previously assessed by HITIQ, please submit a de-identified maxillary scan in STL format for review. The scan may be any existing case and does not need to meet the full Dental Scan Requirements v1.0; it will be used solely to assess baseline scan resolution and mesh quality.

HITIQ reserves the right to reject scans that do not meet our minimum anatomical capture and file format requirements.

List of Scanners with comparable or higher published specifications:

Brand	Device
3Shape	TRIOS 5
	TRIOS 4
	TRIOS 3
Dentsply Sirona	Primescan
	Omnicam
DEXIS (formerly KaVo / Carestream lineage)	IS 3800
	IS 3700
Carestream Dental	CS 3800
	CS 3700
	CS 3600
Planmeca	Emerald S
	Emerald
Shining 3D	Aoralscan 3
	Aoralscan Elite
Align Technology	iTero Element 5D Plus
	iTero Element 5D
	iTero Element Flex
Medit	i700
	i700 Wireless
	i600
	i500