IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

3SHAPE A/S, Plaintiff, v. MEDIT CORP., Defendant.	Civil Action No.: 6:22-cv-00443

COMPLAINT

Plaintiff 3Shape A/S ("Plaintiff," "3Shape" or "3Shape A/S"), by and through its undersigned counsel, for its complaint against Defendant Medit Corp. ("Defendant" or "Medit"), hereby alleges and states the following:

THE PARTIES

1. Plaintiff 3Shape A/S is a Danish corporation with a principal place of business at Holmens Kanal 7, 1060 Copenhagen K, Denmark.

2. 3Shape A/S markets industry-leading TRIOS intraoral scanners, including, in the United States, TRIOS 3 and TRIOS 4 (collectively with their predecessors, TRIOS and TRIOS Color, "TRIOS"). The TRIOS is sold in the United States.

3. On information and belief, Medit is a corporation existing under the laws of the Republic of Korea (South Korea) with a principal place of business at 15-27 Anamdong 5-ga, Seongbuk-gu, Seoul, Korea 02842 and/or 23 Goryeodae-ro 22 gil, Seongbuk-gu, Seoul, Korea 02855.

3SHAPE EXHIBIT 2001
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4. Medit makes, uses, sells and offers for sale in the United States and/or imports into the United States its i700 Wireless intraoral scanners (collectively with the i700, i600, and i500 intraoral scanners, the "Medit Scanners") and related software including but not limited to, Medit Scan and Medit Link that embody systems and/or methods for intraoral scanning and generating virtual models for dental applications (collectively with the Medit Scanners, the "Accused Products").

JURISDICTION AND VENUE

5. This lawsuit is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

6. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. Upon information and belief, Medit has, directly and/or through its agents and/or intermediaries, committed acts and continues to commit acts of patent infringement within Texas giving rise to this action. Medit, directly and indirectly at least through agents and intermediaries, has committed and continues to commit acts of infringement in this District by, among other things, making, using, selling, offering to sell, and importing the Accused Products, each of which infringes one or more claims of U.S. Patents owned by 3Shape as further described below. On information and belief, Medit causes the Accused Products to be sold and used in the State of Texas and within this judicial district in violation of 3Shape's patent rights. On information and belief, the Court has specific personal jurisdiction over Defendant Medit based on Medit's actions with respect to the Accused Products in the State of Texas, and 3Shape's causes of action for infringement arise from Medit's actions and contacts with the State of Texas.

8. In addition, or in the alternative, this Court has personal jurisdiction over Defendant Medit under Federal Rule of Civil Procedure 4(k)(2).

9. Upon information and belief, Defendant Medit is a foreign corporation not resident in the U.S., making venue proper in any judicial district, including this district, under 28 U.S.C. § 1391(c)(3).

THE ASSERTED PATENTS

10. U.S. Patent No. 11,076,146 (the "'146 patent") was validly issued by the United States Patent and Trademark Office ("USPTO") on July 27, 2021. 3Shape A/S is the owner by assignment of the entire right, title, and interest in and to the '146 patent, entitled "Focus Scanning Apparatus," a true and correct copy of which is attached hereto as Exhibit 1. Evidence of the assignment of the '146 patent to 3Shape A/S is recorded with the USPTO at Reel/Frame 055651/0277. 3Shape A/S is listed on the face of the '146 patent as assignee. 3Shape is the sole owner of the '146 patent and of all rights of recovery thereunder for past and future infringement.

11. U.S. Patent No. 9,629,551 ("the '551 patent") was validly issued by the USPTO on April 25, 2017. 3Shape A/S is the owner by assignment of the entire right, title, and interest in and to the '551 patent, entitled "Detection of a Movable Object When 3D Scanning a Rigid Object," a true and correct copy of which is attached hereto as Exhibit 2. Evidence of the assignment of the '551 patent to 3Shape is recorded with the USPTO at Reel/Frame 043981/0005. 3Shape is listed on the face of the '551 patent as assignee. 3Shape is the sole owner of the '551 patent and of all rights of recovery thereunder for past and future infringement.

12. U.S. Patent No. 10,064,553 ("the '553 patent") was validly issued by the USPTO on September 4, 2018. 3Shape A/S is the owner by assignment of the entire right, title, and

interest in and to the ’553 patent, entitled “Detection of a Movable Object When 3D Scanning a Rigid Object,” a true and correct copy of which is attached hereto as Exhibit 3. Evidence of the assignment of the ’553 patent to 3Shape is recorded with the USPTO at Reel/Frame 043998/0743. 3Shape is listed on the face of the ’553 patent as assignee. 3Shape is the sole owner of the ’553 patent and of all rights of recovery thereunder for past and future infringement.

13. U.S. Patent No. 10,695,151 (the “’151 patent”) was validly issued by the USPTO on June 30, 2020. 3Shape A/S is the owner by assignment of the entire right, title, and interest in and to the’151 patent, entitled “Detecting Tooth Shade,” a true and correct copy of which is attached hereto as Exhibit 4. Evidence of the assignment of the ’151 patent to 3Shape is recorded with the USPTO at Reel/Frame 044834/0161. 3Shape is listed on the face of the ’151 patent as assignee. 3Shape is the sole owner of the ’151 patent and of all rights of recovery thereunder for past and future infringement.

14. To the extent necessary, 3Shape has complied with all requirements of 35 U.S.C. § 287 at all relevant times for each of the Asserted Patents.

BACKGROUND

15. 3Shape is a pioneer developer of dental equipment and software for use by dental professionals and laboratories since 2004. In particular, 3Shape’s products include TRIOS – 3Shape’s intra-oral scanner, along with a number of other dental hardware and software products.

16. 3Shape first introduced TRIOS at the International Dental Show in March 2011. Since its introduction, TRIOS has received numerous industry awards and is widely recognized for its innovative dental technologies. TRIOS has now received the Cellerant “Best of Class”

Technology award for a record-breaking nine years in a row. TRIOS was also named the most accurate intraoral scanner in an independent American Dental Association study.

17. In February 2014, 3Shape unveiled its innovation of automatic teeth shade measurement at the Chicago Midwinter Meeting Dental Show. In March 2017, 3Shape launched its TRIOS 3 Wireless intraoral scanner at the International Dental Show. The TRIOS 3 Wireless was the first wireless intraoral scanner on the market.

18. On information and belief, defendant Medit designs, develops, manufactures, and markets the Medit Scanners, including but not limited to the i700 Wireless, i700, i600, and i500 intraoral scanners, as well as related software, including but not limited to, Medit Scan, Medit Link, Medit Design, Medit Smile Design, Medit Ortho Simulation, Medit Crown Fit, Medit Model Builder, and Medit Temporaries.

19. On information and belief, Medit developed, made, and sold the infringing Accused Products despite having knowledge of 3Shape's patents at issue based on, at a minimum, Medit's knowledge of the 3Shape intraoral scanners and software sold in the market.

COUNT I
(Infringement of U.S. Patent No. 11,076,146)

20. 3Shape restates and incorporates by reference its allegations in paragraphs 1-19 as if fully restated in this paragraph.

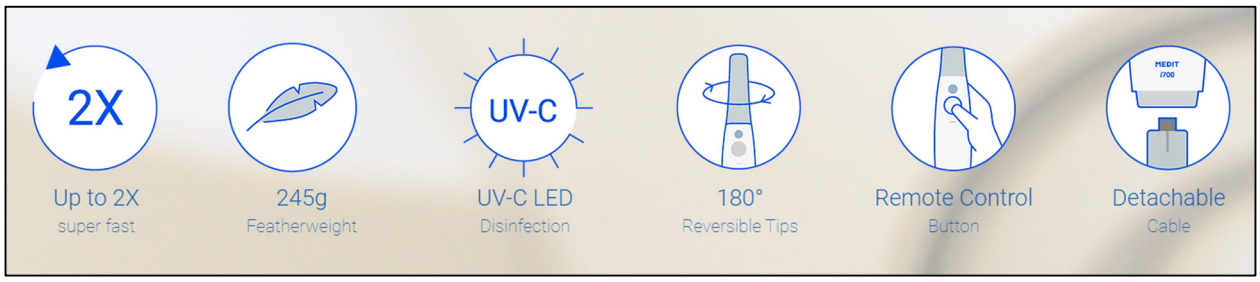
21. The '146 patent discloses inventions related to an intraoral scanner apparatus and method for optical 3D scanning of surfaces, including teeth and surrounding soft tissue in a patient's oral cavity. For example, the '146 patent discloses capturing 2D images of a time-varying illumination pattern transmitted onto an object to determine the 3D geometry of the object. The '146 patent also discloses capturing 2D images of an object illuminated with

different colors at different times and combining the different colors to obtain the color of the surface of the object.

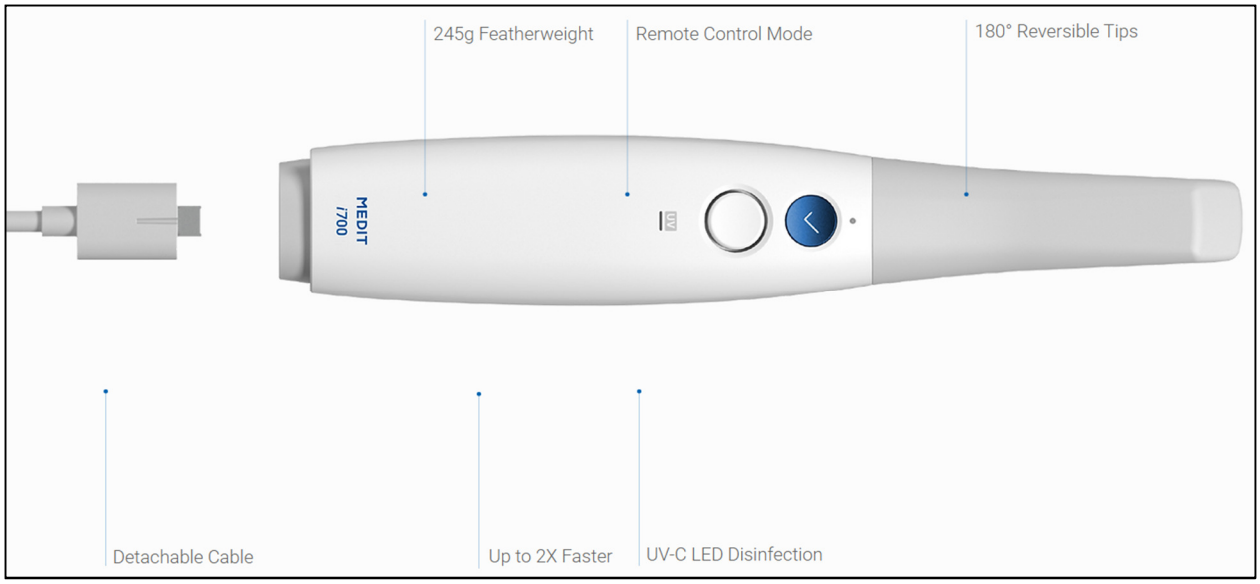
22. Medit has directly, either literally or under the doctrine of equivalents, infringed at least one claim of the ’146 patent under 35 U.S.C. § 271(a), by making, using, selling, offering for sale in the United States and/or importing into the United States, without authority, the i700 Wireless intraoral scanner. The i700 Wireless intraoral scanner meets each and every element of one or more claims of the ’146 patent.

23. Upon information and belief, the basic hardware architecture and operation for obtaining 3D geometry and color of scanned objects in an oral cavity of the Medit i500, i600, i700, and i700 Wireless intraoral scanners are materially the same regarding the issue of infringement of the ’146 patent. (Medit i500 Brochure at 11 (*available at* https://www.straumann.com/content/dam/media-center/digital/en/documents/brochure/product-information/490.676-en_low.pdf) (last accessed Apr. 14, 2022); Medit i600 Webpage 1 (available at https://www.i700wireless.com/i600/; Medit i600 Webpage 1 https://www.medit.com/dental-clinic-i600); Medit i700 Brochure at 14 (*available at* https://www.straumann.com/content/dam/media-center/digital/en-us/documents/brochure/product-information/NAMLIT-1477-Medit-I700-brochure.pdf) (last accessed Apr. 14, 2022).)

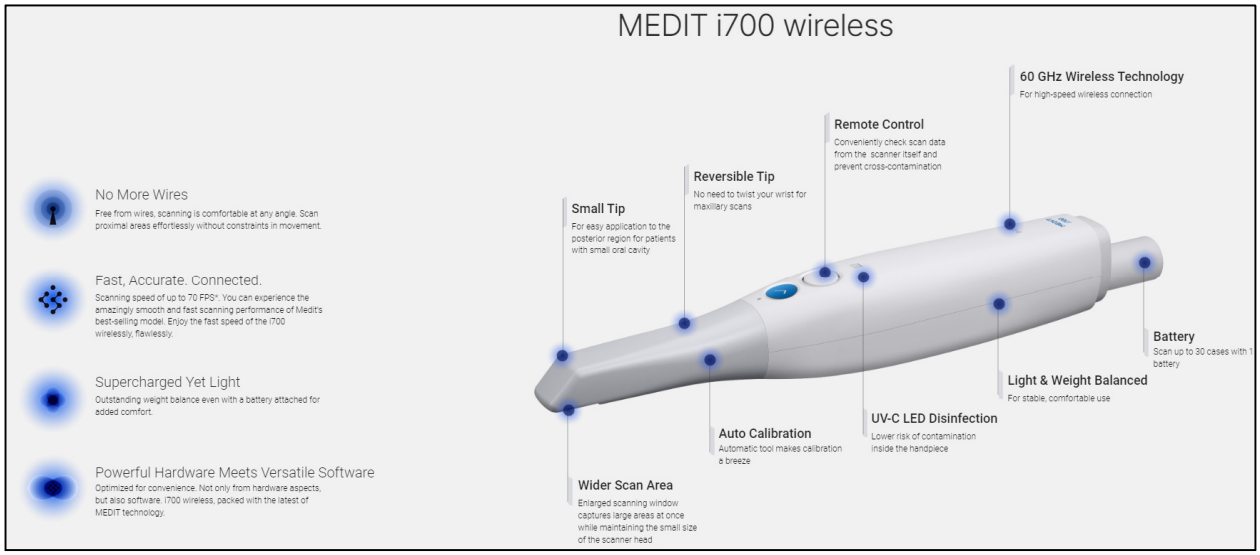
(Medit i500 Webpage (*available at* https://www.medit.com/dental-clinic-i500).)



(Medit i700 Webpage (*available at* https://www.medit.com/dental-clinic-i700).)



(*Id.*)



(Medit i700 Wireless Webpage 1 (*available at* https://www.medit.com/dental-clinic-i700wireless).)

24. Upon information and belief, the existing public information about the architecture of the i700 intraoral scanner also applies to the i700 Wireless intraoral scanner.

(Medit i700 Wireless Webpage 2 (*available at* https://www.i700wireless.com/).)

25. Medit has been and is now directly infringing, literally and/or under the doctrine of equivalents, at least claim 1 of the ’146 patent.

26. By way of illustration only, the i700 Wireless intraoral scanner meets each element of claim 1 of the ’146 patent.

27. The i700 Wireless intraoral scanner includes “[a]n intraoral scanner for determining the 3D geometry and color of at least a part of the surface of an object in an oral cavity.” That scanner comprises “[1] at least one camera accommodating an array of sensor elements; [2] a pattern generator configured to generate, using a light source, a probe light with a plurality of configurations in the form of a time-varying illumination pattern; [3] an optical system for transmitting the probe light towards the object along an optical path thereby illuminating at least a part of the object with the time-varying illumination pattern, and for transmitting at least a part of the light returned from the object to the at least one camera to form a plurality of 2D images, wherein the 3D geometry is determined based on the plurality of 2D images and the time-varying illumination pattern; [4] a tip configured to be inserted into the oral cavity; and [5] a hardware processor configured to: [a] selectively switch a color of the probe light, thereby illuminating the object with different colors at different times; [b] record different images by the at least one camera at the different times, thereby recording images of the object with the different colors; [c] and combine the different colors from the different images, thereby obtaining the color of the surface of the object, [6] wherein the intraoral scanner is wireless, and [7] wherein the at least one camera is a high-speed camera.” (Ex. 1, 37:24-52.)

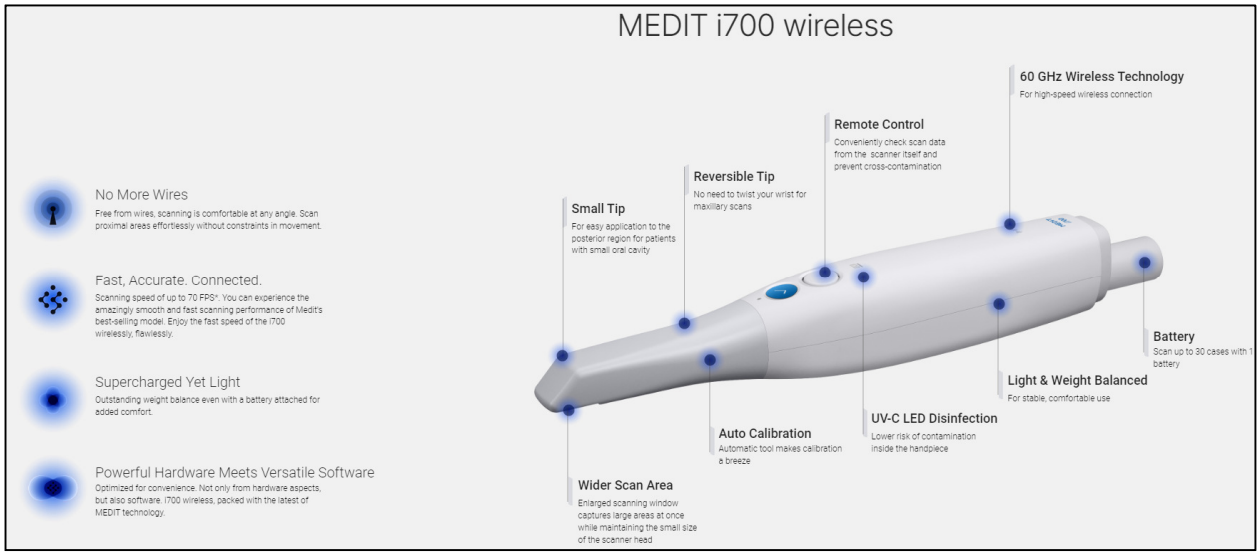
28. Public documentation about Medit’s intraoral scanner illustrates how it satisfies all elements of claim 1 of the ’146 patent. By way of example only, the information from user

guides, brochures, training videos, assorted webpages, and marketing documents reproduced below show that the i700 Wireless intraoral scanner contains the infringing functionality.

29. The i700 Wireless intraoral scanner includes an intraoral scanner for determining the 3D geometry and color of at least a part of the surface of an object in an oral cavity.

> The i700 Wireless is a wireless device that operates through a wireless module. For this reason, the i700 Wireless handpiece has a transmitter and the wireless hub has a receiver. The i700 Wireless wireless system uses two types of frequencies to transmit data and control the i700 Wireless handpiece.

(How to use the i700 wireless hub (*available at* https://support.medit.com/hc/en-us/articles/5634093227033-How-to-use-the-i700-wireless-hub).)

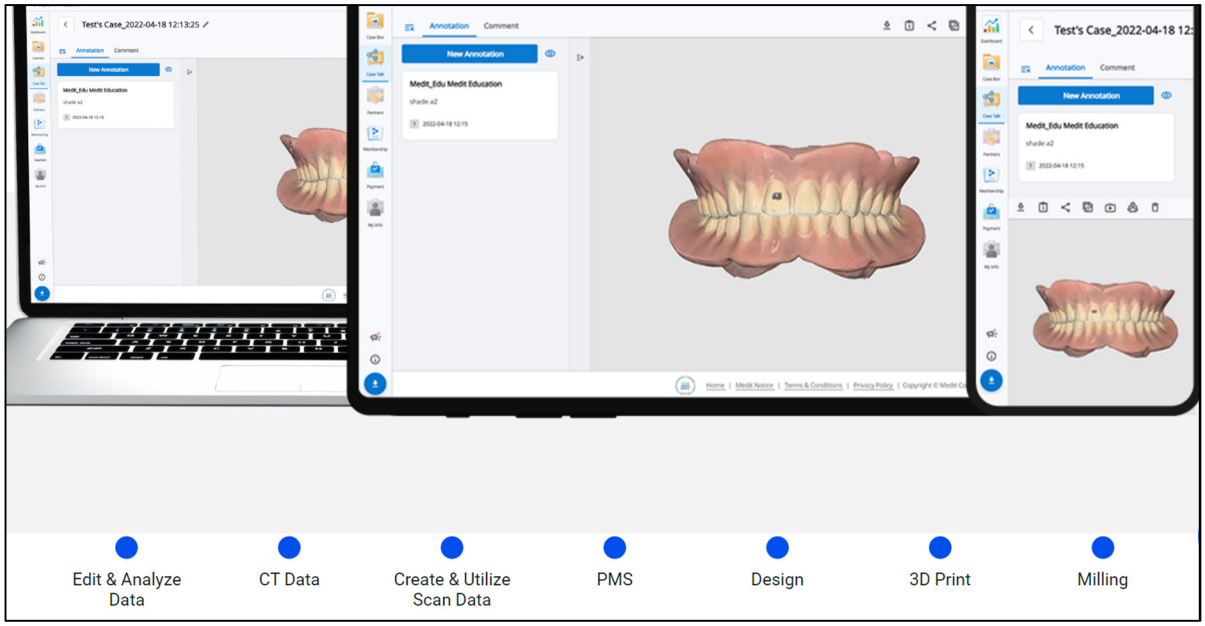


(Medit i700 Wireless Webpage 1.)

Medit i700 wireless Specifications

Scanning technology	Scanning frame	Up to 70 FPS
	Imaging technology	3D-in-motion video technology | 3D full color streaming capture
	Light source	LED
	Anti-fogging technology	Adaptive anti-fogging
Accuracy	Full-arch	10.9μm ± 0.98
Handpiece	Dimensions	313 x 44 x 47.4mm
	Weight	328g (Includes battery, tip)
Tip	Tip size	22.2 x 17.1mm
	Mirror angle	45-degree angle *Easier to scan distal molar area*
	Scan area	15 x 13mm
	Autoclavable	Autoclave 150 times 121°C 30 mins (Gravity Type) 134°C 4 mins (Pre-Vacuum Type) 135°C 10 mins (Gravity Type)
	Reversible tip	Yes
Special mode	Remote control mode	Yes
	UV-C disinfection	Yes
Cable	Length	1.0m *3.0m / (Sold Separately)*
	Connectivity	USB 3.1 Gen1 (Wireless Hub)

(*Id.*)



(Medit i700 Wireless Webpage 2.)

> The image acquisition program Medit Scan for Clinics offers a user-friendly interface for digitally recording the topographical properties of teeth and surrounding tissues using the i700 wireless equipment.

(System requirements for the i700 wireless (*available at* https://support.medit.com/hc/en-us/articles/5642152280473-System-requirements-for-the-i700-wireless).)

30. The i700 Wireless intraoral scanner includes [1] at least one camera accommodating an array of sensor elements. For example, the Medit i700 Wireless Scanner uses a video-type scanning, *i.e.* a camera, to capture images of light received from an object.

> **The Medit i500 uses video-type scanning based on triangulation technology.**

(*See* Medit i500 Blog (*available at* https://blog.medit.com/medit/medit-i500s-scanning-and-technology-video-type-scanning-and-triangulation).)

Medit i700 wireless Specifications

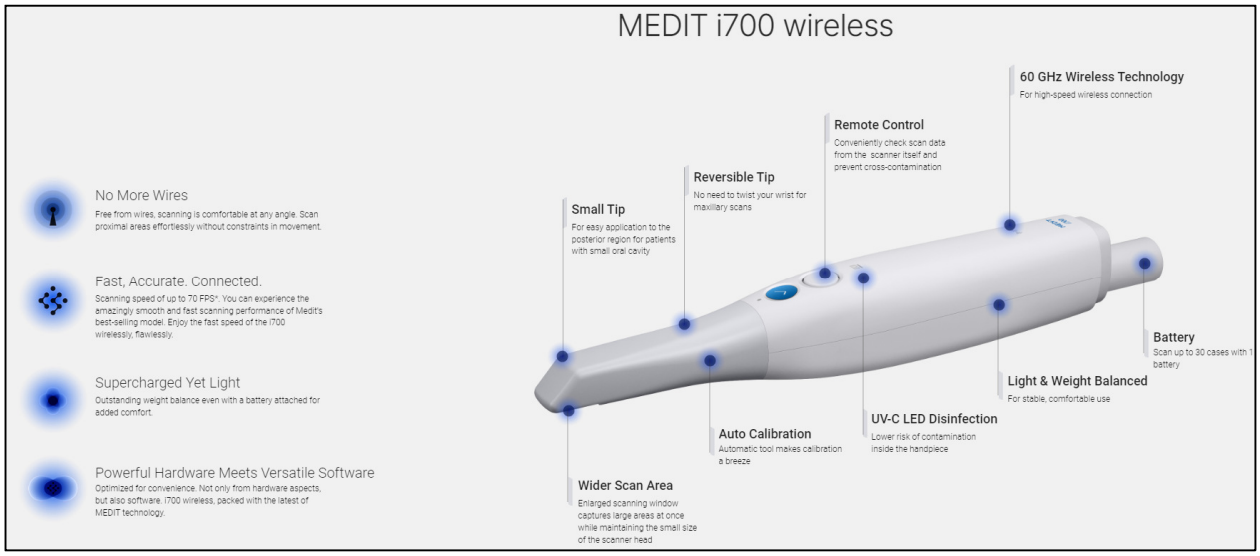
Scanning technology	Scanning frame	Up to 70 FPS
	Imaging technology	3D-in-motion video technology | 3D full color streaming capture
	Light source	LED
	Anti-fogging technology	Adaptive anti-fogging
Accuracy	Full-arch	10.9μm ± 0.98
Handpiece	Dimensions	313 x 44 x 47.4mm
	Weight	328g (Includes battery, tip)
Tip	Tip size	22.2 x 17.1mm
	Mirror angle	45-degree angle *Easier to scan distal molar area*
	Scan area	15 x 13mm
	Autoclavable	Autoclave 150 times 121°C 30 mins (Gravity Type) 134°C 4 mins (Pre-Vacuum Type) 135°C 10 mins (Gravity Type)
	Reversible tip	Yes
Special mode	Remote control mode	Yes
	UV-C disinfection	Yes
Cable	Length	1.0m *3.0m / (Sold Separately)*
	Connectivity	USB 3.1 Gen1 (Wireless Hub)

(Medit i700 Wireless Webpage 1.)

31. On information and belief, the i700 Wireless intraoral scanner includes [2] a pattern generator configured to generate, using a light source, a probe light with a plurality of configurations in the form of a time-varying illumination pattern and [3] an optical system for transmitting the probe light towards the object along an optical path thereby illuminating at least a part of the object with the time-varying illumination pattern, and for transmitting at least a part of the light returned from the object to the at least one camera to form a plurality of 2D images, wherein the 3D geometry is determined based on the plurality of 2D images and the time-varying

illumination pattern. On information and belief, the Medit i500 scanner hardware is materially the same as the scanner hardware in the Medit i700 wireless scanner for the purpose of these elements of the asserted claim. The Medit i700 wireless scanner, outputs different configurations in the probe light at different points in the scan, forming a time-varying illumination pattern.

32. The i700 Wireless intraoral scanner incorporates the optical system as described as well as the camera sensor within the wand housing.



(Medit i700 Wireless Webpage 1.)

33. The Medit i700 Wireless Scanner generates its scans using a "video-type scanning" technology comprised of up to 70 images per second.

Category		Medit *i700*
Scanning technology	Scanning frame	Up to 70 FPS
	Imaging technology	3D-in-motion video technology | 3D full color streaming capture
	Light source	LED
	Anti-fogging technology	Adaptive anti-fogging
Accuracy	Full-arch	10.9μm ± 0.98

(Medit i700 Brochure at 14.)

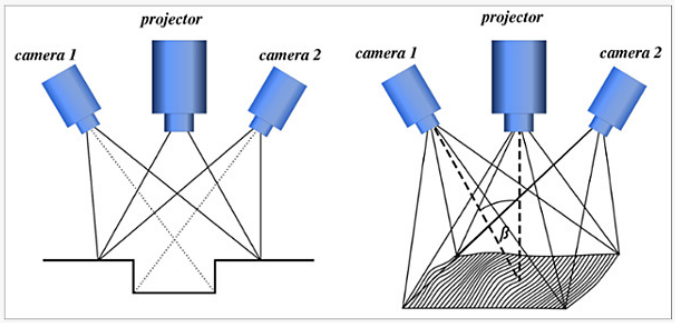
Scanning Technology

Scanning Frame	Imaging Technology
Up to 70 FPS	3D-in-motion video technology 3D full color streaming capture

(Medit i700 Wireless Webpage.)

34. These images, incorporating the time varying illumination pattern, are used to generate the 3D geometry.

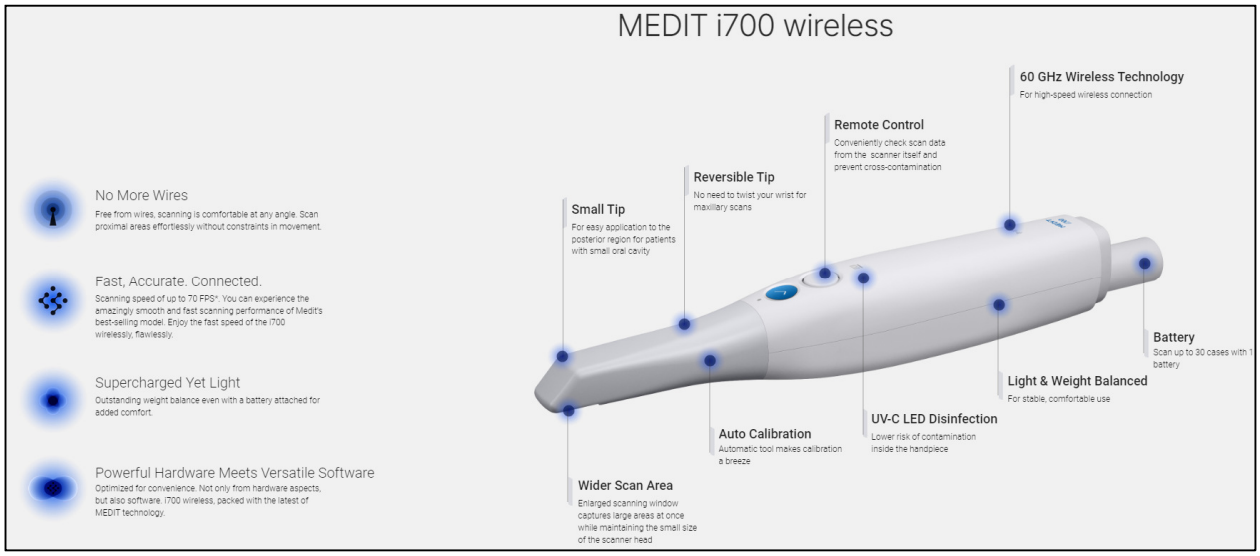
While video-type and picture-type scanning may be fairly obvious, triangulation technology is much less apparent if you have not studied it. Essentially, triangulation uses a 3-camera pattern in order to capture 3D imagery. What makes triangulation useful is its ability to acquire high-speed data from materials you don't want to be in too much contact with such as delicate or wet materials. In fact, triangulation principles have been widely used for centuries, but we are now beginning to really utilize it for industrial applications.



However, do all intraoral scanners use triangulation? The answer is no. Many other scanners actually use a different method to capture 3D images; confocal microscopy. Just like triangulation, you may not necessarily understand confocal microscopy but in essence, it projects onto a point and captures that specific projection. Anything closer or further than that focused point is not captured. Confocal microscopy is great when it comes to producing optical slices of an object at various depths with high resolution.

(Medit i500 Blog.)

35. The i700 Wireless intraoral scanner includes [4] a tip configured to be inserted into the oral cavity.



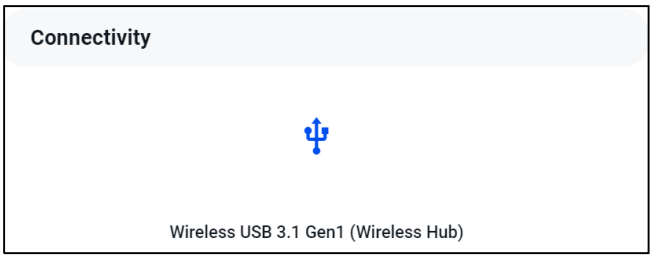
(Medit i700 Wireless Webpage 1.)

(Medit i700 Wireless Webpage 2.)

36. On information and belief, the i700 Wireless intraoral scanner includes a [5] hardware processor configured to: (a) selectively switch a color of the probe light, thereby

illuminating the object with different colors at different times (*e.g.*, red, blue, green); (b) record different images by the at least one camera at the different times, thereby recording images of the object with the different colors; and (c) combine the different colors from the different images, thereby obtaining the color of the surface of the object.

37. The i700 Wireless intraoral scanner has a hardware processor that connects to a computer via wireless USB 3.1.



(Medit i700 Wireless Webpage.)

38. On information and belief, the i700 Wireless intraoral scanner selectively switches a color of the probe light, thereby illuminating the object with different colors at different times (*e.g.*, red, blue, green). The i700 Wireless intraoral scanner has a processor that allows it to rotate through a sequence of patterns and colors during the scanning process, including switching the color of the probe light. The i700 Wireless Scanner, selectively switches a color of the probe light, thereby illuminating the object with different colors at different times (*e.g.*, red, blue, green).

39. On information and belief, the i700 Wireless intraoral scanner records different images by the at least one camera at the different times, thereby recording images of the object with the different colors. As the pattern and color sequence vary in time, the video-type scanning will record these patterns at the different times, thereby recording images of the object with the different colors.

Scanning Technology

Scanning Frame	Imaging Technology
Up to 70 FPS	3D-in-motion video technology 3D full color streaming capture

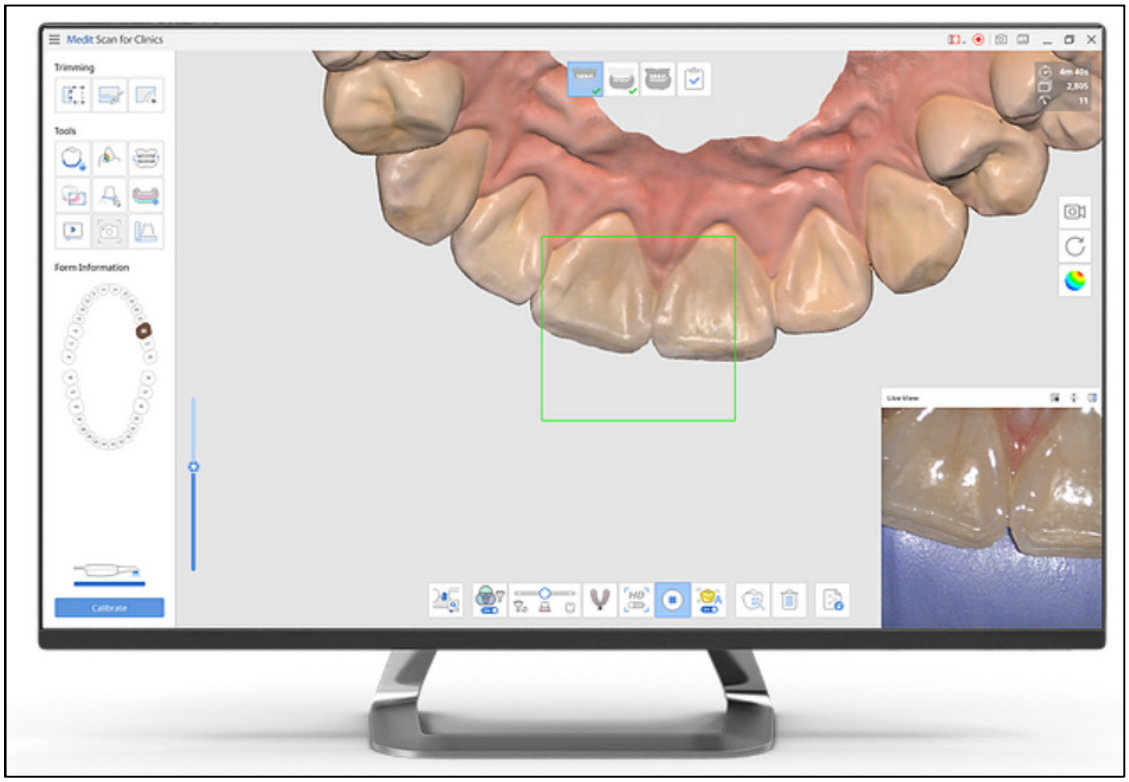
(Medit i700 Wireless Webpage.)

40. On information and belief, the i700 Wireless intraoral scanner combines the different colors from the different images, thereby obtaining the color of the surface of the object.

Scanning Technology

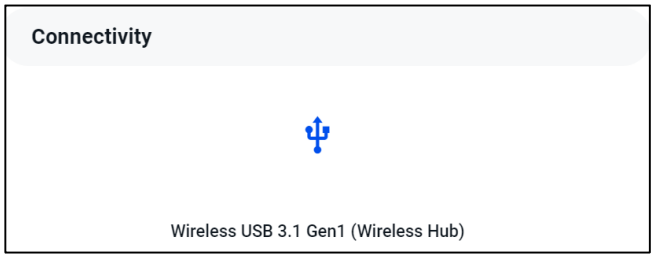
Scanning Frame	Imaging Technology
Up to 70 FPS	3D-in-motion video technology 3D full color streaming capture

(Medit i700 Wireless Webpage.)



(Medit Link Webpage (*available at* https://www.medit.com/medit-link).)

41. The i700 Wireless intraoral scanner includes [6] a wireless intraoral scanner.



(Medit i700 Wireless Webpage.)

42. The i700 Wireless intraoral scanner includes [7] a high-speed camera. The Medit i700 Wireless Scanner generates its scans using a high speed camera with "video-type scanning" technology and its resellers advertise this camera as "super-fast."

Medit i700

(Medit)

Show expanded view

About the product:

The next generation intraoral scanner from Medit takes all the advances from the success of i500 and improves on them. This new unit features a super-fast camera that captures up to 70 frames per second, which increases more data with each pass resulting in a smoother and quicker scanning process along with pragmatic colors and a crisp image. The new i700 has other internal components

(Pearson Dental Medit i700 Product Page at 1 (*available at* https://www.pearsondental.com/catalog/product2.asp?majcatid=790&catid=7243&subcatid=39683&pid=96505).)

Impressive Speed

Using two high-speed cameras, the Medit *i500* scans quickly and efficiently. With its intelligent scan detecting algorithm, the *i500* picks up where it left off for a smooth scanning experience.

(Medit i500 Brochure at 4.)

43. Medit has directly infringed the ’146 patent, including by making, using, selling, offering for sale in the United States, and importing into the United States, products that contain the intraoral scanner disclosed in the ’146 patent. Further, Medit uses the patented scanner, *e.g.*, by testing and/or demonstrating the Accused Products.

44. On information and belief, Medit knew or should have known of its infringement of the ’146 patent at least as early as February 25, 2022, based on conversations with at least one 3Shape executive at the Chicago Dental Society Midwinter Meeting and LMT Lab Day during which 3Shape informed Medit that it infringed 3Shape’s wireless scanner intellectual property.

45. Medit also actively induces and has induced infringement of the ’146 patent under 35 U.S.C. § 271(b), either literally or under the doctrine of equivalents.

46. On information and belief, Medit encouraged and facilitated infringement with specific intent by, for example, training its customers to use the i700 Wireless intraoral scanner in a manner that infringes at least one claim of the ’146 patent, promoting the use of the i700 Wireless intraoral scanner in a manner that infringes at least one claim of the ’146 patent to Medit’s customers, and disseminating promotional and marketing material and product literature to those customers encouraging use of the i700 Wireless intraoral scanner in a manner that infringes at least one claim of the ’146 patent. For example, Medit is aware that the features claimed in the ’146 patent are features in the i700 Wireless intraoral scanner and are features used by others that purchase the i700 Wireless intraoral scanner and, therefore, that purchasers and/or end users of the i700 Wireless intraoral scanner will infringe the ’146 patent.

47. Medit actively induces infringement of the ’146 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the i700 Wireless intraoral scanner and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides and technical information (including but not limited to the materials and videos identified in this Count of the Complaint) to third parties including but not limited to resellers, distributors, customers, potential customers, dentists, orthodontists, and/or other end users of the i700 Wireless intraoral scanner. Those third parties directly infringe the ’146 patent at least by selling, offering to sell, and/or using the i700 Wireless intraoral scanner.

48. Medit has been and is now contributing to the infringement of the ’146 patent under 35 U.S.C. § 271(c), either literally or under the doctrine of equivalents.

49. Medit has actively, knowingly, and intentionally contributed to and continues to actively, knowingly, and intentionally contribute to the infringement of the ’146 patent by selling or offering to sell, and continuing to sell or offer for sale the i700 Wireless intraoral scanner within the United States and/or by importing the i700 Wireless intraoral scanner into the United States with knowledge that the infringing technology in the i700 Wireless intraoral scanner is especially made and/or especially adapted for use in infringement of the ’146 patent, is a material part of the patented invention, and is not a staple article or commodity of commerce suitable for substantial non-infringing use and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the i700 Wireless intraoral scanner do not have any substantial noninfringing uses. Medit has such knowledge at least because the claimed features of the ’146 patent are used by others including, but not limited to resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the i700 Wireless intraoral scanner.

50. On information and belief, Medit knew or should have known of the ’146 patent and has acted, and continues to act, in an egregious and wanton manner by infringing the ’146 patent. On information and belief, Medit’s infringement of the ’146 patent has been and continues to be willful and deliberate. 3Shape is a known pioneer in intraoral scanners with whom Medit knows and has familiarity. On information and belief, Medit knowingly developed, has sold, sells and offers to sell the i700 Wireless intraoral scanner in an infringing manner that was known to Medit or was so obvious that Medit should have known of its infringement.

51. 3Shape informed Medit of its infringement of the intellectual property claimed by the ’146 patent at least via one 3Shape executive at the Chicago Dental Society Midwinter Meeting and LMT Lab Day on February 25, 2022 during which 3Shape informed Medit that it

infringed 3Shape's wireless scanner intellectual property, yet Medit has continued to infringe the patent in an egregious and wanton manner that Medit knew or should have known amounted to infringement of the patent.

52. On information and belief, despite knowing its actions constituted infringement of the '146 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the '146 patent, Medit nevertheless continued its infringing actions, and continues to make, use and sell the i700 Wireless intraoral scanner.

53. Medit's acts of infringement have injured and damaged 3Shape and will continue to injure and damage 3Shape.

54. Medit's actions have caused 3Shape to suffer irreparable harm resulting from the loss of its lawful patent rights and the loss of its ability to exclude others from making, using, selling, offering to sell and importing the inventions of the '146 patent. On information and belief, Medit will continue these infringing acts unless enjoined by this court.

COUNT II
(Infringement of U.S. Patent No. 9,629,551)

55. 3Shape restates and incorporates by reference its allegations in paragraphs 1-54 as if fully restated in this paragraph.

56. The '551 patent discloses inventions related to methods and systems for the detection of a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.

57. On information and belief, Medit has directly, either literally or under the doctrine of equivalents, infringed at least one claim of the '551 patent under 35 U.S.C. § 271(a), by making, using, selling, offering for sale in the United States and/or importing into the United States, without authority, the Accused Products. By way of illustration only, the i500 intraoral

scanners and related software meet each and every element of one or more claims of the ’551 patent.[1]

58. Medit has been and is now directly infringing, literally and/or under the doctrine of equivalents, at least claim 1 of the ’551 patent.

59. By way of illustration only, the i500 intraoral scanners and related software meet each element of claim 1 of the ’551 patent.

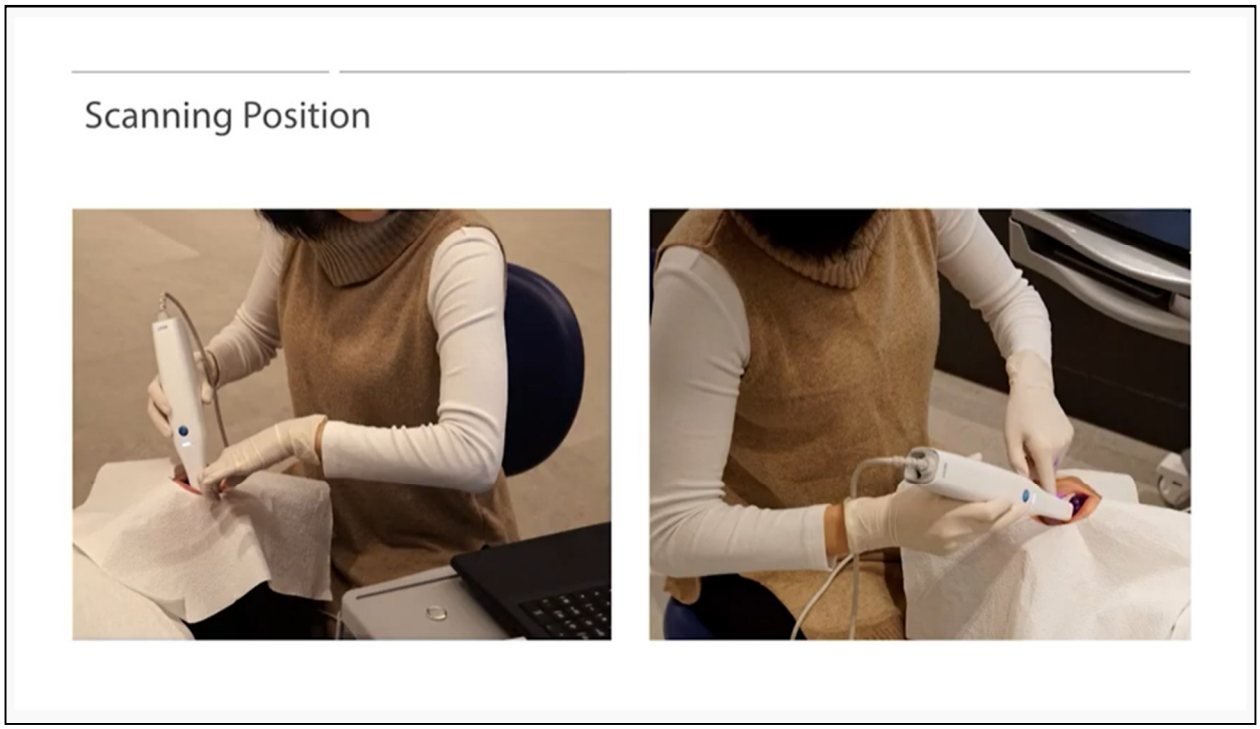
60. Medit’s i500 intraoral scanners and related software are configured to perform “[a] method for detecting a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.” That method comprises (1) “providing a first 3D representation of at least part of a surface by scanning at least part of the location”; (2) “providing a second 3D representation of at least part of the surface by scanning at least part of the location”; (3) “determining for the first 3D representation a first excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation”; (4) “determining for the second 3D representation a second excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation”; (5) “if a portion of the surface in the first 3D representation is located in space in the second excluded volume, the portion of the surface in the first 3D representation is disregarded in the generation of the virtual 3D model”; and/or (6) “if a portion of the surface in the second 3D representation is located in space in the

[1] Medit’s i700 scanner includes the same “Smart soft tissue filtering” functionality described herein. The functionality in the i700 scanner is referred to as “Smart Scan Filtering.” (*See* https://support.medit.com/hc/en-us/articles/360028319532-Smart-scan-filtering (last accessed Dec. 15, 2021); https://blog.medit.com/medit/new-iscan-function-smart-filtering (last accessed Dec. 15, 2021); Medit i700 Brochure at 8.)

first excluded volume, the portion of the surface in the second 3D representation is disregarded in the generation of the virtual 3D model". (Ex. 2 at 29:45-30:2.)

61. Public documentation about Medit's scanning system illustrate how the i500 intraoral scanners and related software satisfy all elements of representative claim 1 of the '551 patent. By way of example only, the information from user guides, brochures, training videos, assorted webpages, and marketing documents reproduced below show that the Medit scanners contain the infringing functionality.

62. Medit's i500 intraoral scanners and related software perform a method for detecting a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.

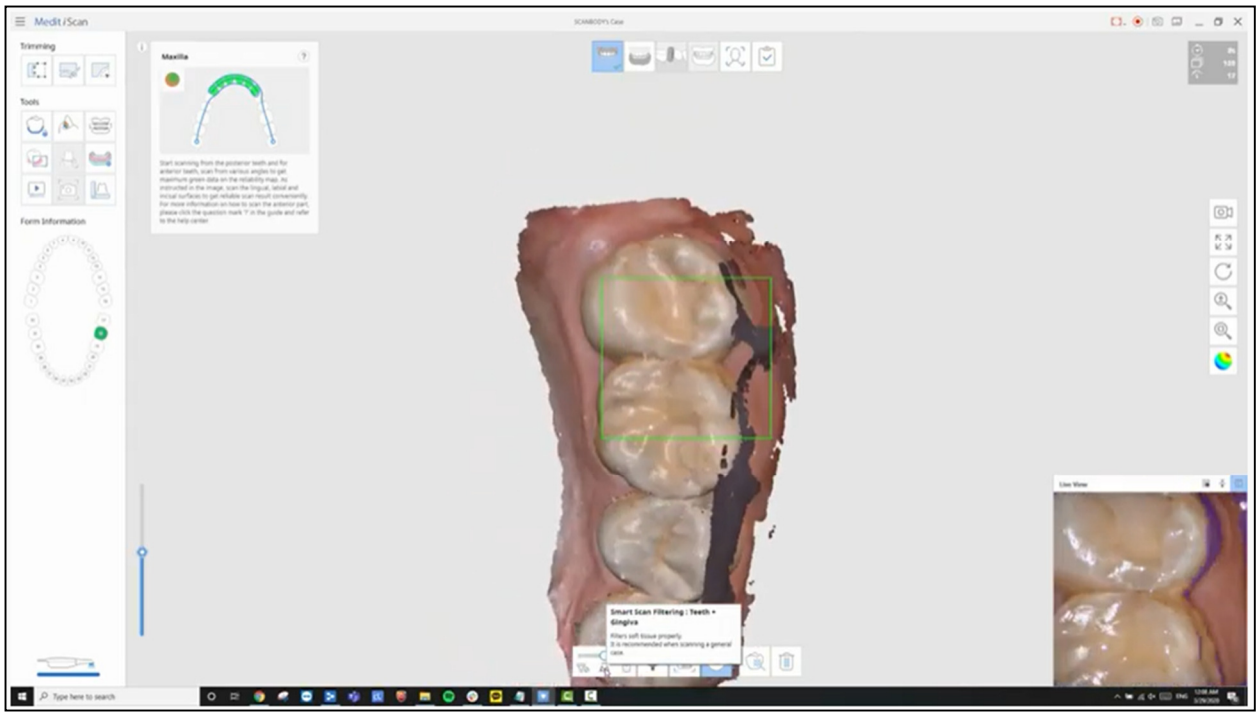


(*See*, *e.g.*, Intraoral Scan Strategy Video at 1:15 (*available at* https://www.youtube.com/watch?v=xMXPtvkRZ4E).)

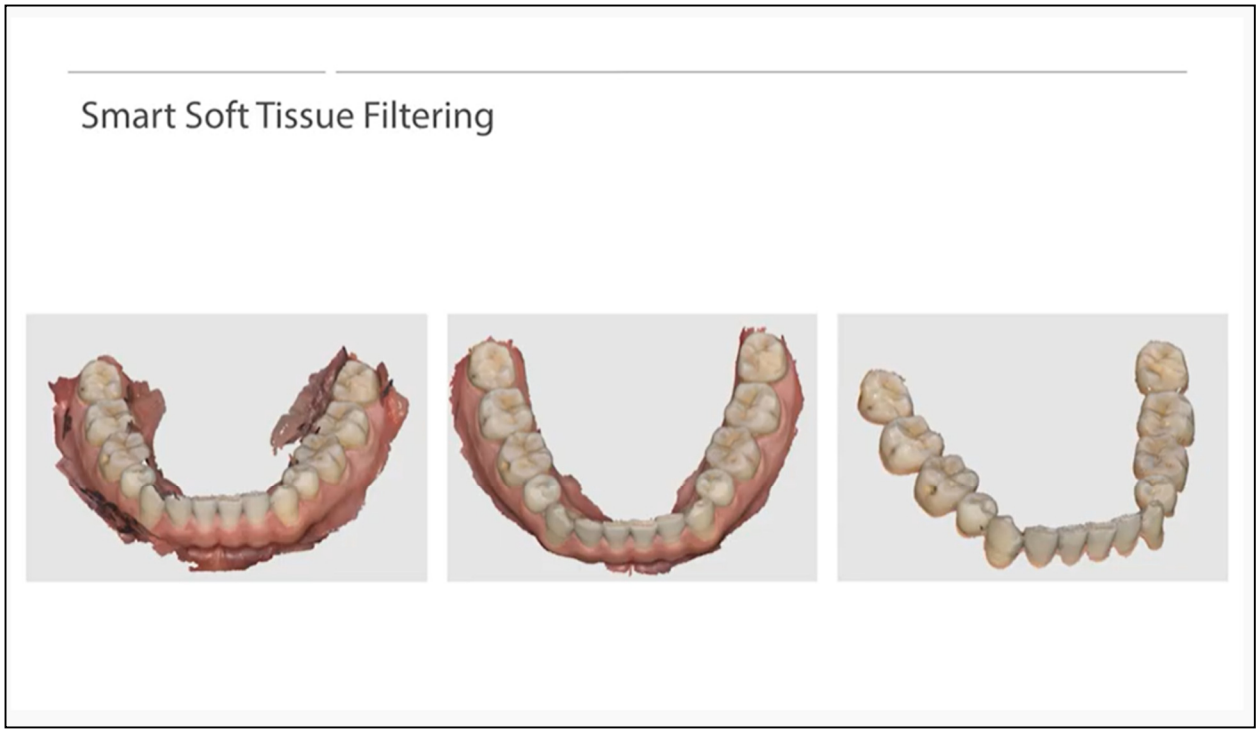
Smart soft tissue filtering

- removes unnecessary soft tissues depending on the selected filter.
- No filtering: Soft tissue will remain intact. This option is useful when scanning an edentulous case, dental model, or stone model.
- Teeth + Gingiva: removes soft tissues that interfere with the scan, leaving only the necessary gingiva. You can use this option for most of general scan cases.
- Teeth: removes all other data except for teeth and the least amount of gingiva. This option is effective when you need to perform additional scanning for only the teeth after you scanned the case using the "Teeth + Gingiva" option.

(*See*, *e.g.*, Pre-operative Mandible Scan Help Page (*available at* https://support.medit.com/hc/en-us/articles/360025015752-Pre-operation-mandible-scan).)

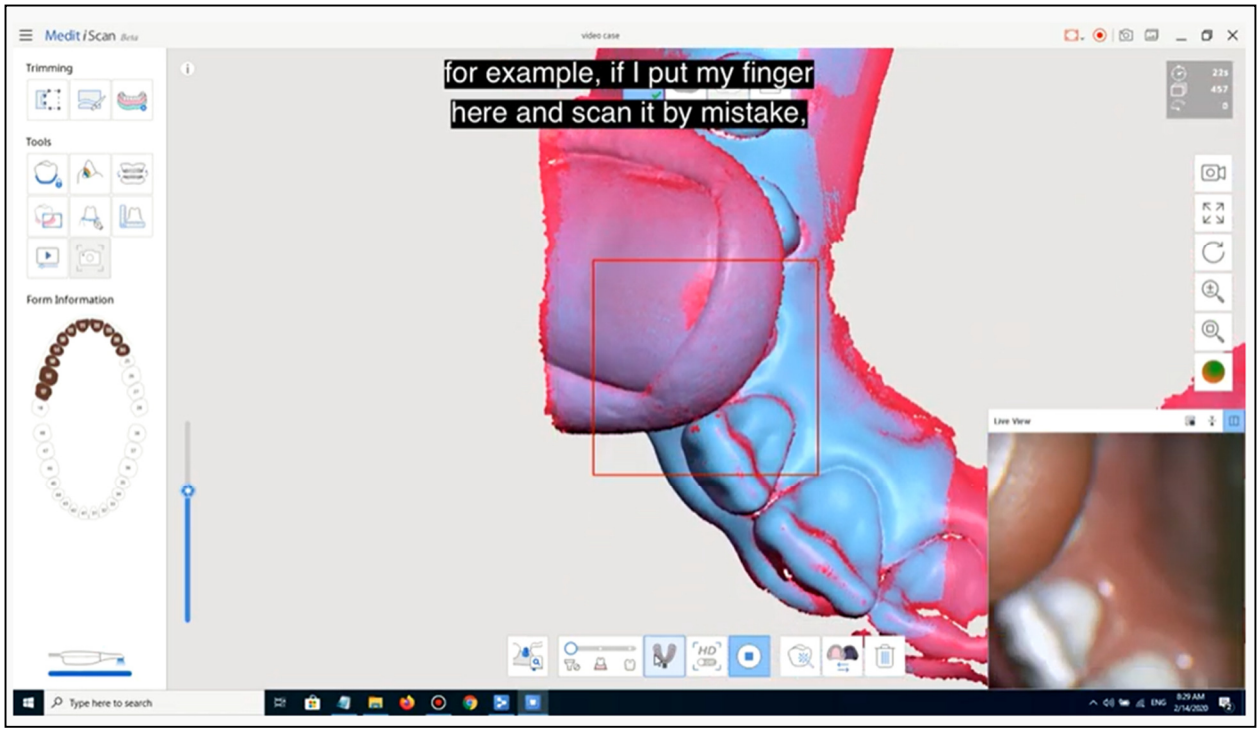


(*See, e.g.*, Intraoral Scan Strategy Video at 5:23.)

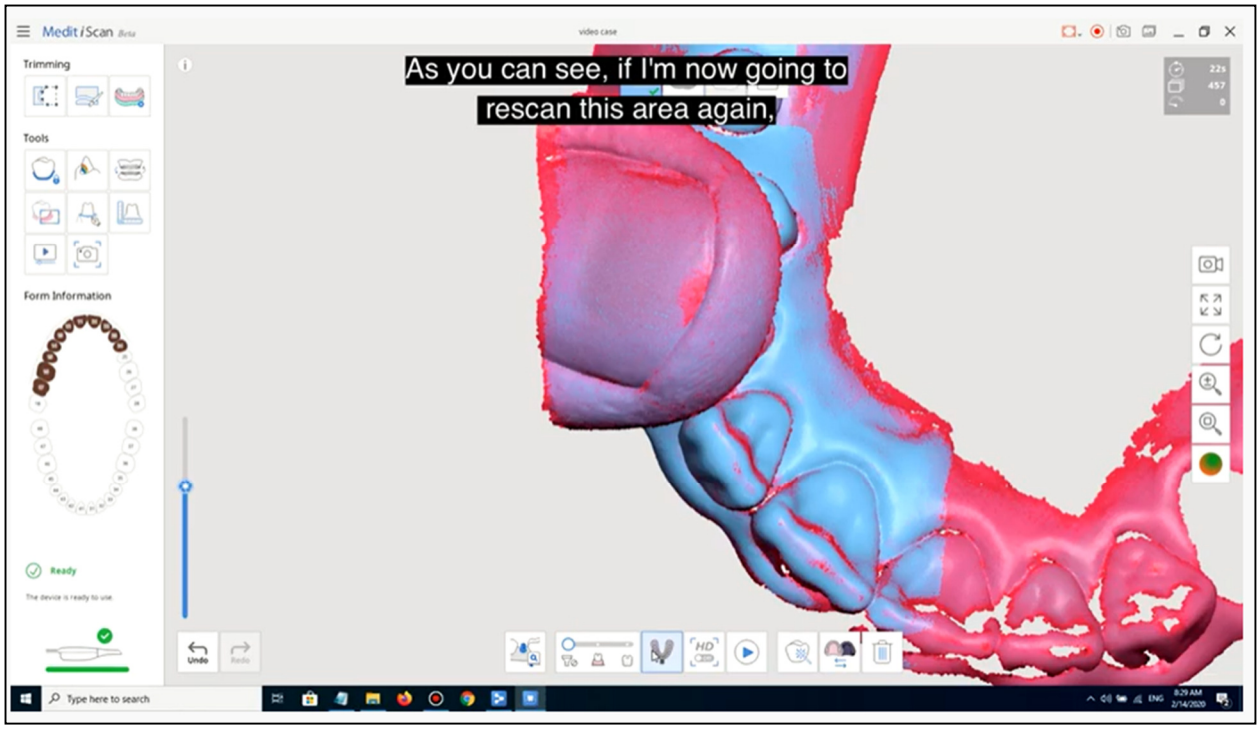


(Intraoral Scan Strategy Video at 5:45.)

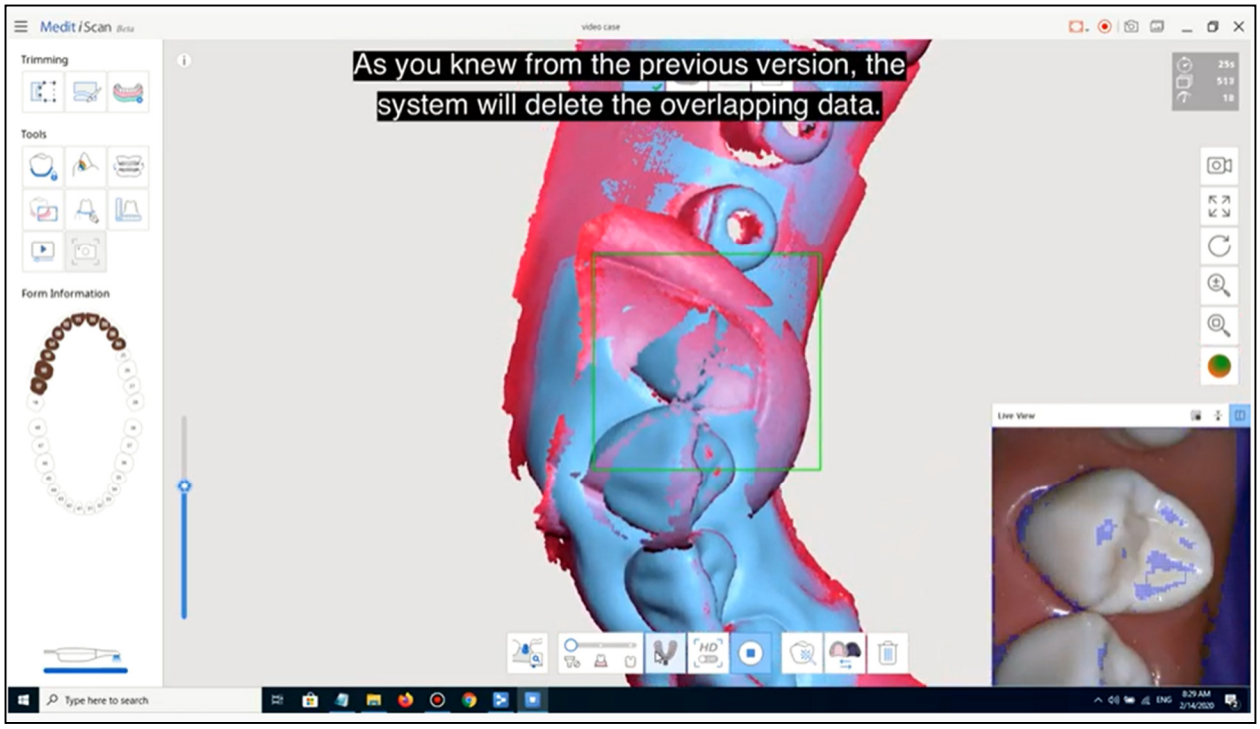
63. Medit's i500 intraoral scanners and related software (1) provide a first 3D representation of at least part of a surface by scanning at least part of the location. The i500 intraoral scanners and related software scan teeth in the oral cavity of a patient.



(Smart Scan Filtering Options in iScan - Medit Link Video at 3:54 (*available at* https://www.youtube.com/watch?v=qA85EeF0k4c).)

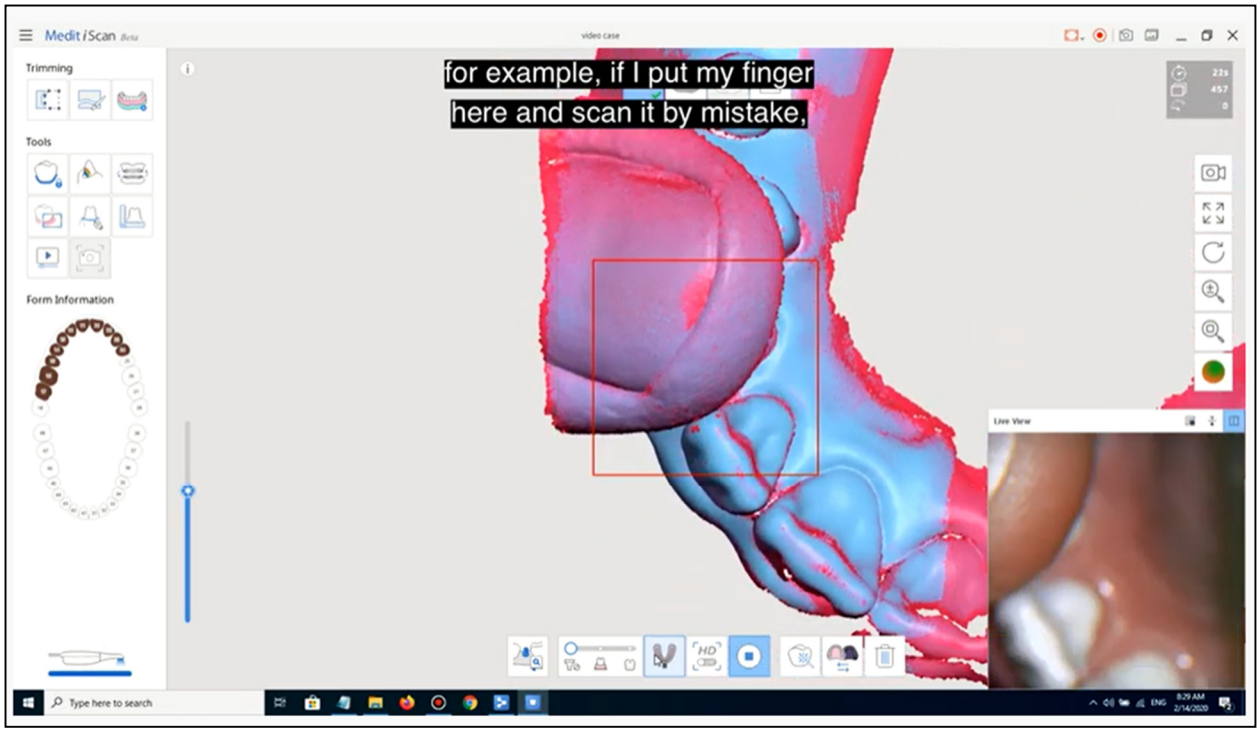


(*Id.* at 3:56.)

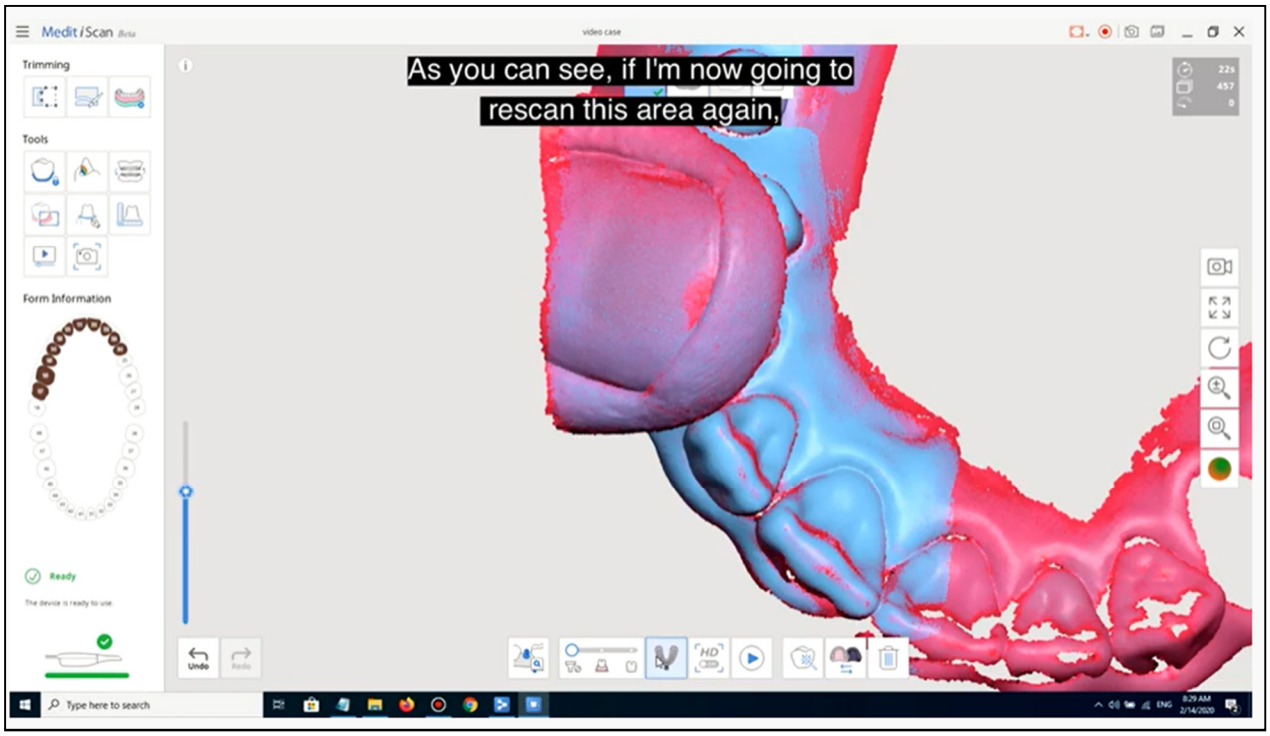


(*Id.* at 4:02; *see also* How to use global soft tissue filtering(beta) Video (*available at* https://www.youtube.com/watch?v=IqWIooLhXkk); 94 How to use the filtering function in iScan - Medit Link Video (*available at* https://www.youtube.com/watch?v=bZvG2SzGmzM).)

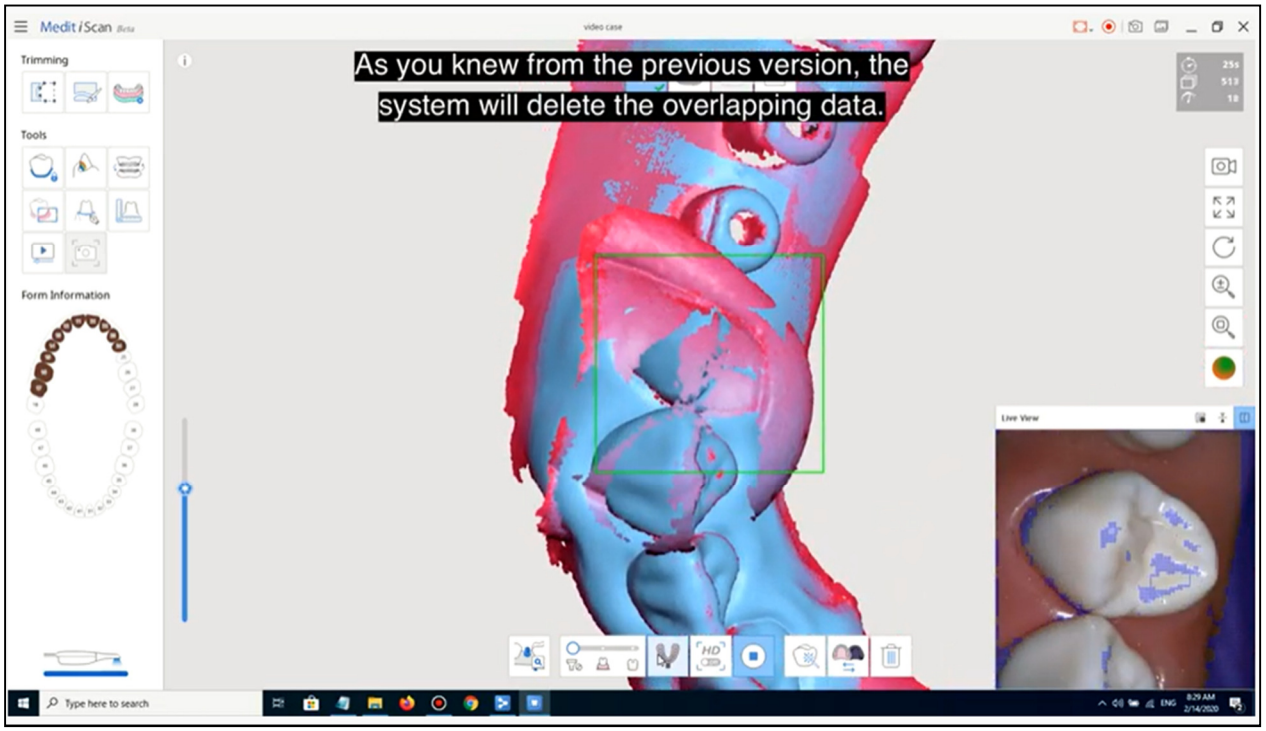
64. Medit's i500 intraoral scanners and related software (2) provide a second 3D representation of at least part of the surface by scanning at least part of the location.



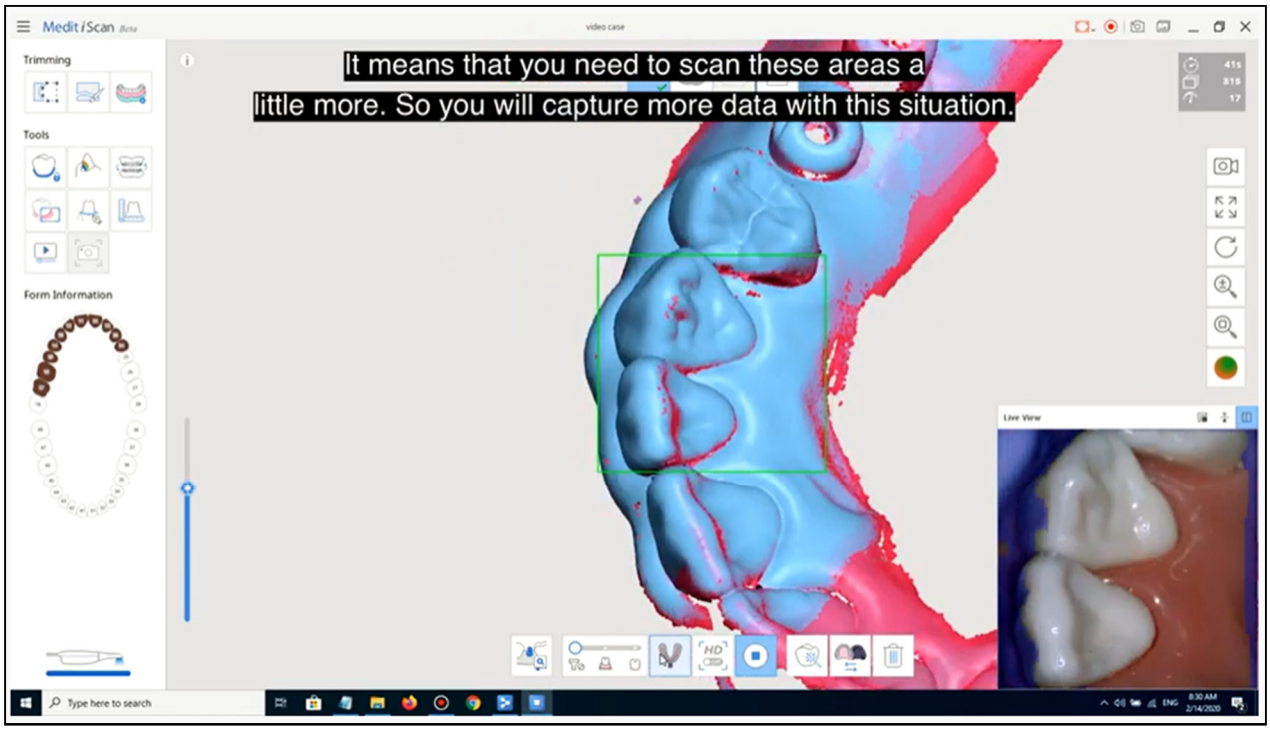
(Smart Scan Filtering Options in iScan - Medit Link Video at 3:54.)



(*Id.* at 3:56.)

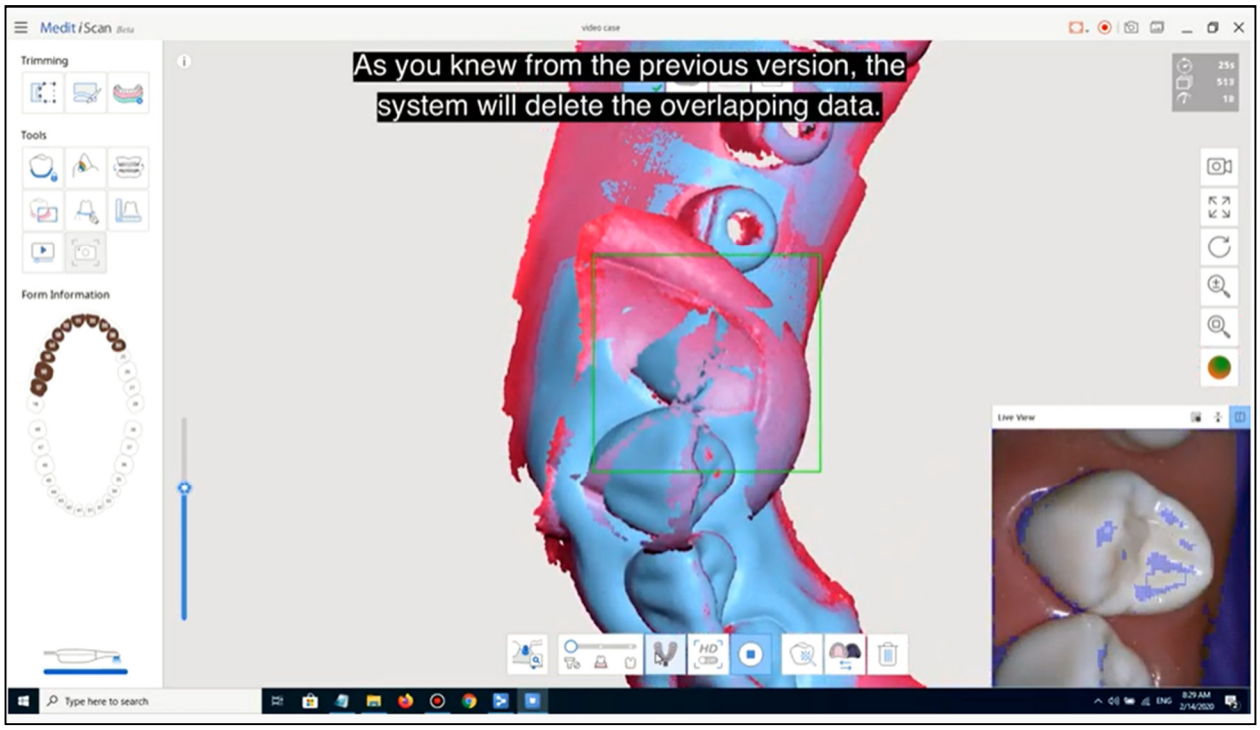


(*Id.* at 4:02.)



(*Id.* at 4:56; *see also* How to use global soft tissue filtering(beta) Video; 94 How to use the filtering function in iScan - Medit Link Video.)

65. Upon information and belief, Medit's i500 intraoral scanners and related software (3) determine for the first 3D representation a first excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation and (4) determine for the second 3D representation a second excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation. Medit explained the functionality a blog post and said "we are also currently testing a 'Global Soft Tissue Filtering' feature meant to auto-delete scan data recognized as 'noise data', such as the cheeks and the tongue. This feature is useful especially in cases where complete soft tissue retraction is difficult." (New iScan Functions Blog (*available at* https://blog.medit.com/medit/adjustment-scan-depth-filtering-levels; *see also* How to use global soft tissue filtering(beta) Video.) Additional videos and websites show the outcome of such a step:

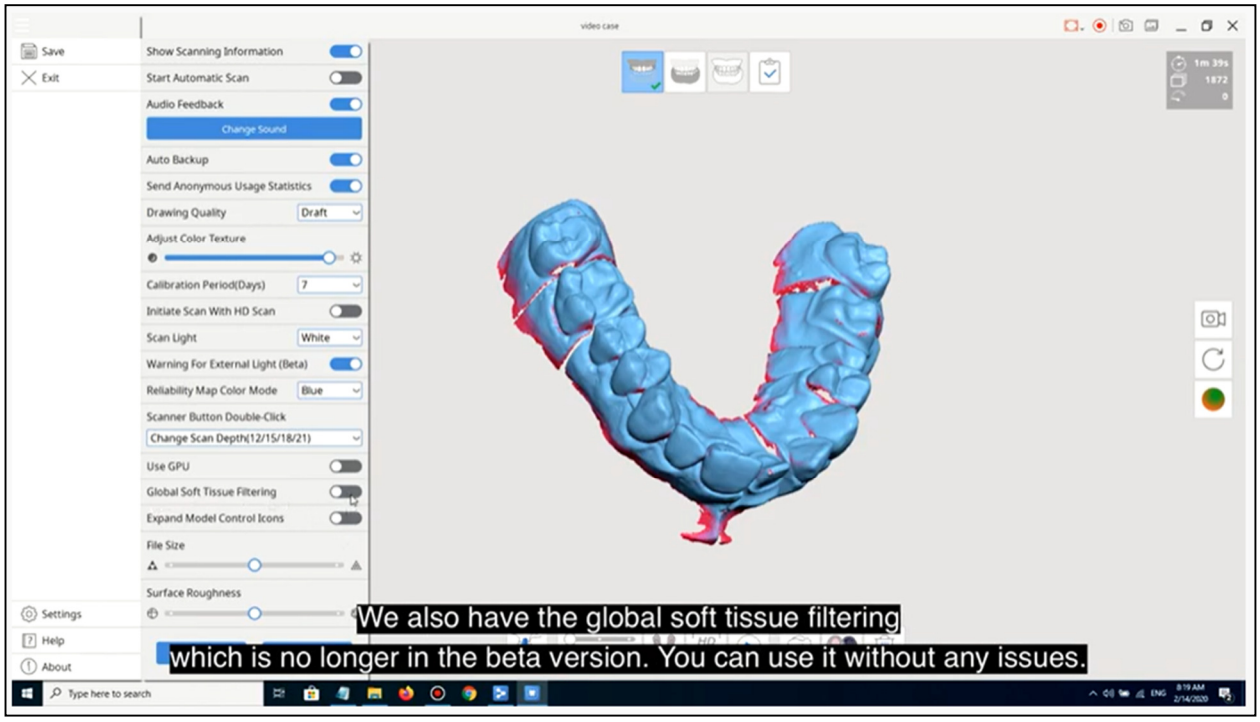


(Medit Link video at 4:02.)

Global Soft Tissue Filtering

- Deletes the soft tissue globally. The deletion process is performed during scanning and when exiting or changing the scan stage.

(Program Settings Help Page (*available at* https://support.medit.com/hc/en-us/articles/360025057232-Program-settings).)



(Settings in iScan V1.4 - Medit Link Video at 8:55 (*available at* https://www.youtube.com/watch?v=63lSvhz2wuA).)

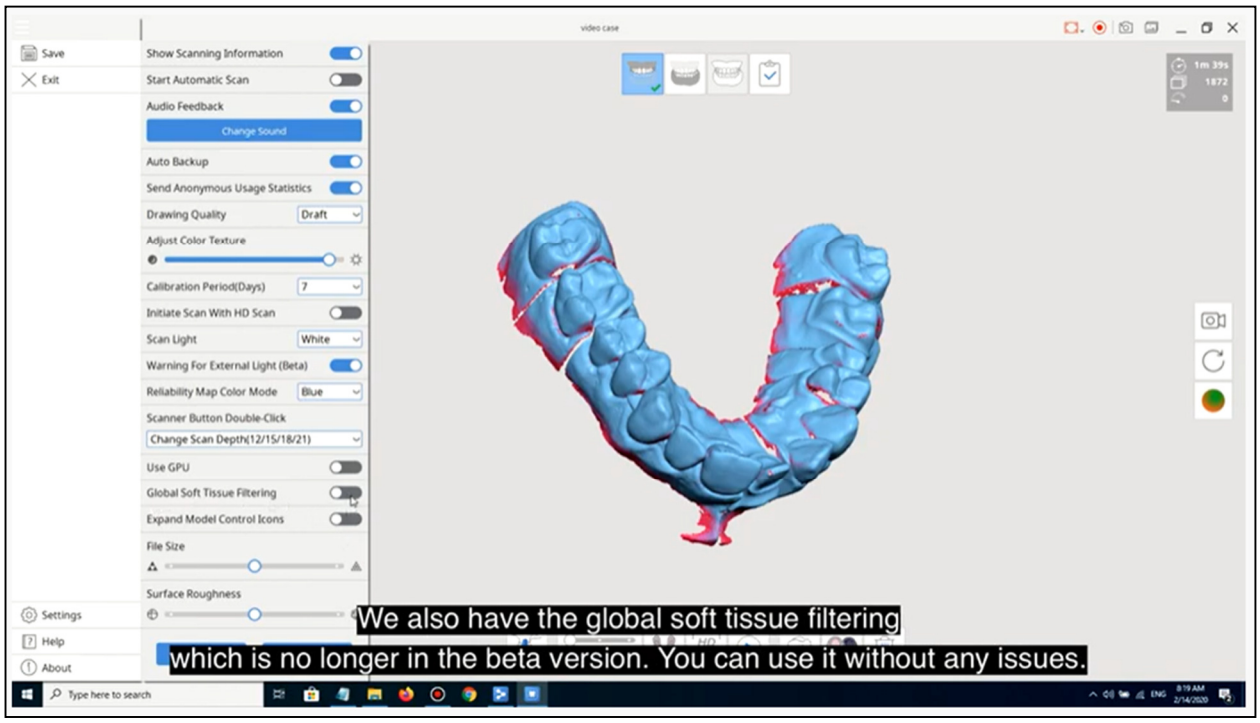
66. Upon information and belief, Medit's i500 intraoral scanners and related software perform a method wherein (5) if a portion of the surface in the second 3D representation is located in space in the first excluded volume, the portion of the surface in the second 3D representation is disregarded in the generation of the virtual 3D model and/or (6) if a portion of the surface in the second 3D representation is located in space in the first excluded volume, the portion of the surface in the second 3D representation is disregarded in the generation of the

virtual 3D model. Medit explained the functionality a blog post and said "we are also currently testing a 'Global Soft Tissue Filtering' feature meant to auto-delete scan data recognized as 'noise data', such as the cheeks and the tongue. This feature is useful especially in cases where complete soft tissue retraction is difficult." (New iScan Functions Blog; *see also* How to use global soft tissue filtering(beta) Video.)

Global Soft Tissue Filtering

- Deletes the soft tissue globally. The deletion process is performed during scanning and when exiting or changing the scan stage.

(Program Settings Help Page.)



(Settings in iScan V1.4 - Medit Link Video at 8:55.)

67. Medit has directly infringed the '551 patent, including by practicing the patented method by, *e.g.*, using, testing and/or demonstrating the i500 intraoral scanners and related software.

68. Medit has had knowledge of the ’551 patent from a date no later than the date of the filing of this Complaint. On information and belief, Medit had knowledge of the ’551 patent prior to the date of the filing of this Complaint by virtue of, *e.g.*, infringement litigation between the parties in the Düsseldorf district court involving 3Shape’s related European patents, EP 2 732 434 B1 and EP 3 401 876 B1, and Medit’s challenges to EP 2 732 434 B1 and EP 3 401 876 in the German Federal Patent Court filed on August 31, 2020 and September 3, 2020, respectively.

69. Medit also actively induces and has induced infringement of the ’551 patent under 35 U.S.C. § 271(b), either literally or under the doctrine of equivalents.

70. On information and belief, Medit directs and/or authorizes its agents, customers, and/or potential customers to make, use, sell, or offer for sale in the United States or import into the United States, the Accused Products.

71. On information and belief, Medit encouraged and facilitated infringement with specific intent by, for example, training its customers and potential customers to use the i500 intraoral scanners and related software in a manner that infringes at least one claim of the ’551 patent, promoting the use of the i500 intraoral scanners and related software in a way that infringes at least one claim of the ’551 patent to Medit’s customers and potential customers, and disseminating promotional and marketing material and product literature to those customers and potential customers encouraging use of the i500 intraoral scanners and related software in a manner that infringes at least one claim of the ’551 patent. For example, Medit is aware that methods claimed in the ’551 patent are methods performed by the Accused Products and others that purchase and/or use the Accused Products and therefore, that purchasers and/or end users of the Accused Products have infringed and will infringe the ’551 patent.

72. Medit actively induces infringement of the ’551 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the i500 intraoral scanners and related software and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides and technical information (including but not limited to the materials and videos identified in this Count of the Complaint) to third parties including but not limited to resellers, distributors, customers, potential customers, dentists, orthodontists, and/or other end users of the i500 intraoral scanners and related software. Those third parties directly infringe the ’551 patent at least by selling, offering to sell, and/or using the i500 intraoral scanners and related software.

73. Medit has been and is now contributing to the infringement of the ’551 patent under 35 U.S.C. § 271(c), either literally or under the doctrine of equivalents.

74. Medit has actively, knowingly, and intentionally contributed to and continues to actively, knowingly, and intentionally contribute to the infringement of the ’551 patent by selling or offering to sell, and continuing to sell or offer for sale the i500 intraoral scanners and related software within the United States and/or by importing the i500 intraoral scanners and related software into the United States with knowledge that the infringing technology is especially made and/or especially adapted for use in infringement of the ’551 patent, is a material part of the patented invention, and is not a staple article or commodity of commerce suitable for substantial non-infringing use and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the i500 intraoral scanners and related software do not have any substantial noninfringing uses. Medit has such knowledge at least because the claimed features of the ’551 patent are used by others including, but not limited to resellers, distributors, customers, dentists,

orthodontists, dental and orthodontic labs, and/or other end users of i500 intraoral scanners and related software.

75. On information and belief, Medit knew or should have known of the ’551 patent and has acted, and continues to act, in an egregious and wanton manner by infringing the ’551 patent. On information and belief, Medit’s infringement of the ’551 patent has been and continues to be willful and deliberate. 3Shape is a known pioneer in intraoral scanners with whom Medit knows and has familiarity. On information and belief, Medit knowingly developed, has sold, sells and offers to sell the Accused Products for use in an infringing manner that was known to Medit or was so obvious that Medit should have known of its infringement.

76. 3Shape informed Medit of its infringement of the ’551 patent at least by virtue of the infringement litigation between the parties in the Düsseldorf district court involving 3Shape’s related European patents, EP 2 732 434 B1 and EP 3 401 876 B1, and Medit’s challenges to EP 2 732 434 B1 and EP 3 401 876 in the German Federal Patent Court filed on August 31, 2020 and September 3, 2020, respectively, yet Medit has continued to infringe the ’551 patent in an egregious and wanton manner that Medit knew or should have known amounted to infringement of the patent.

77. On information and belief, despite knowing its actions constituted infringement of the ’551 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the ’551 patent, Medit nevertheless continued its infringing actions, and continues to make, use and sell the Accused Products.

78. Medit’s acts of infringement have injured and damaged 3Shape and will continue to injure and damage 3Shape.

79. Medit's actions have caused 3Shape to suffer irreparable harm resulting from the loss of its lawful patent rights and the loss of its ability to exclude others from making, using, selling, offering to sell and importing the Accused Products that have been and continue to be used to infringe the claims of the '551 patent. On information and belief, Medit will continue these infringing acts unless enjoined by this court.

COUNT III
(Infringement of U.S. Patent No. 10,064,553)

80. 3Shape restates and incorporates by reference its allegations in paragraphs 1-79 as if fully restated in this paragraph.

81. The '553 patent discloses inventions related to methods and systems for the detection of a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.

82. On information and belief, Medit has directly, either literally or under the doctrine of equivalents, infringed at least one claim of the '553 patent under 35 U.S.C. § 271(a), by making, using, selling, offering for sale in the United States and/or importing into the United States, without authority, the Accused Products. By way of illustration only, the i500 intraoral scanners and related software meet each and every element of one or more claims of the '553 patent.[2]

83. Medit has been and is now directly infringing, literally and/or under the doctrine of equivalents, at least claim 1 of the '553 patent.

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[2] Medit's i700 scanner includes the same "Smart soft tissue filtering" functionality described herein. The functionality in the i700 scanner is referred to as "Smart Scan Filtering." (*See* https://support.medit.com/hc/en-us/articles/360028319532-Smart-scan-filtering (last accessed Dec. 15, 2021); https://blog.medit.com/medit/new-iscan-function-smart-filtering (last accessed Dec. 15, 2021); Medit i700 Brochure at 8.)

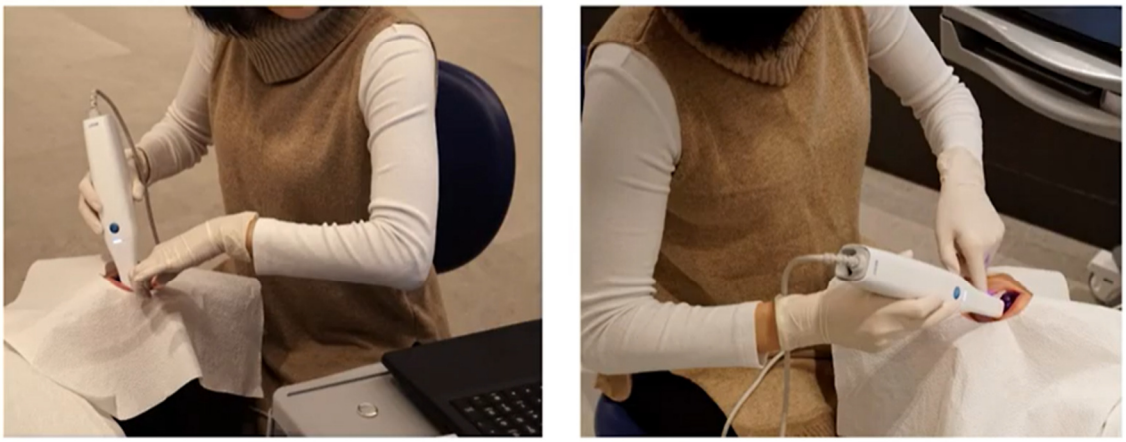
84. By way of illustration only, the i500 intraoral scanners and related software meet each element of claim 1 of the ’553 patent.

85. Medit’s i500 intraoral scanners and related software are configured to perform “[a] method for detecting a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.” That method comprises (1) “providing a first 3D representation of at least part of a surface by scanning at least part of the location”; (2) “providing a second 3D representation of at least part of the surface by scanning at least part of the location”; (3) “determining for the first 3D representation a first excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation”; (4) “if a portion of the surface in the second 3D representation is located in space in the first excluded volume, the portion of the surface in the second 3D representation is disregarded in the generation of the virtual 3D model.” (Ex. 3 at 29:56-30:4.)

86. Public documentation about Medit’s scanning system illustrate how the i500 intraoral scanners and related software satisfy all elements of representative claim 1 of the ’553 patent. By way of example only, the information from user guides, brochures, training videos, assorted webpages, and marketing documents reproduced below show that the Medit scanners contain the infringing functionality.

87. Medit’s i500 intraoral scanners and related software perform a method for detecting a movable object in a location, when scanning a rigid object in the location by means of a 3D scanner for generating a virtual 3D model of the rigid object.

Scanning Position

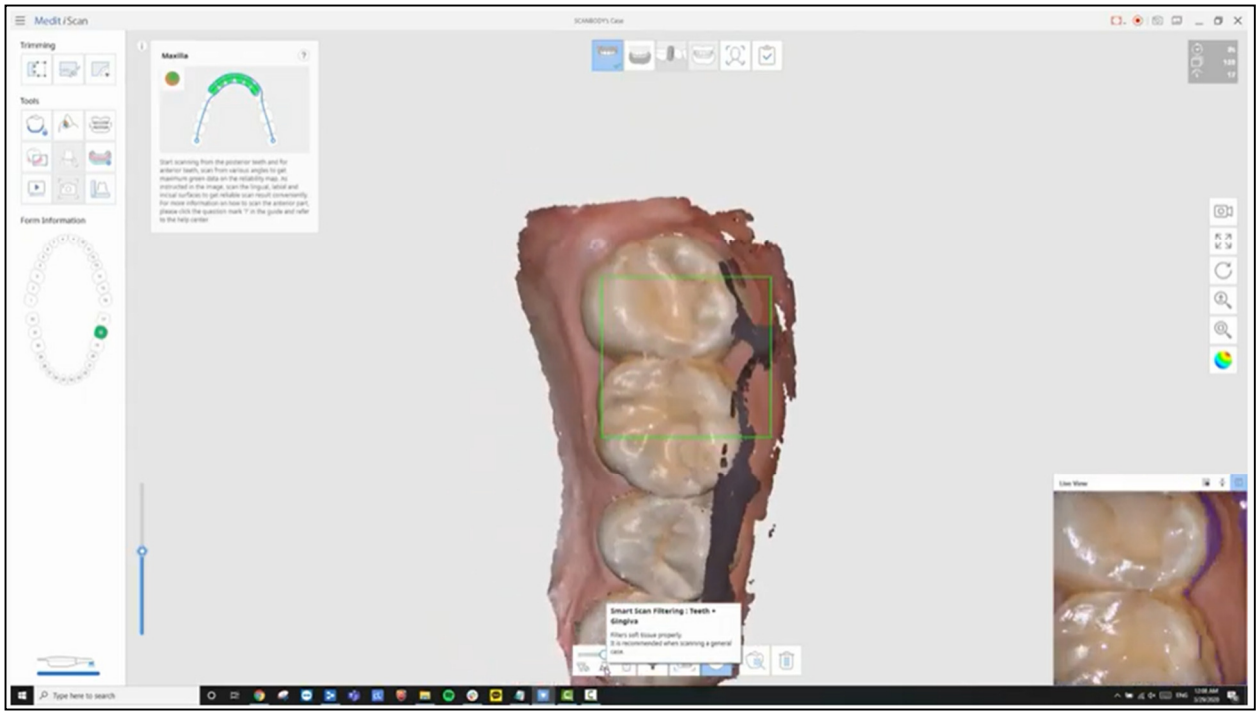


(*See*, *e.g.*, Intraoral Scan Strategy Video at 1:15 (*available at* https://www.youtube.com/watch?v=xMXPtvkRZ4E).)

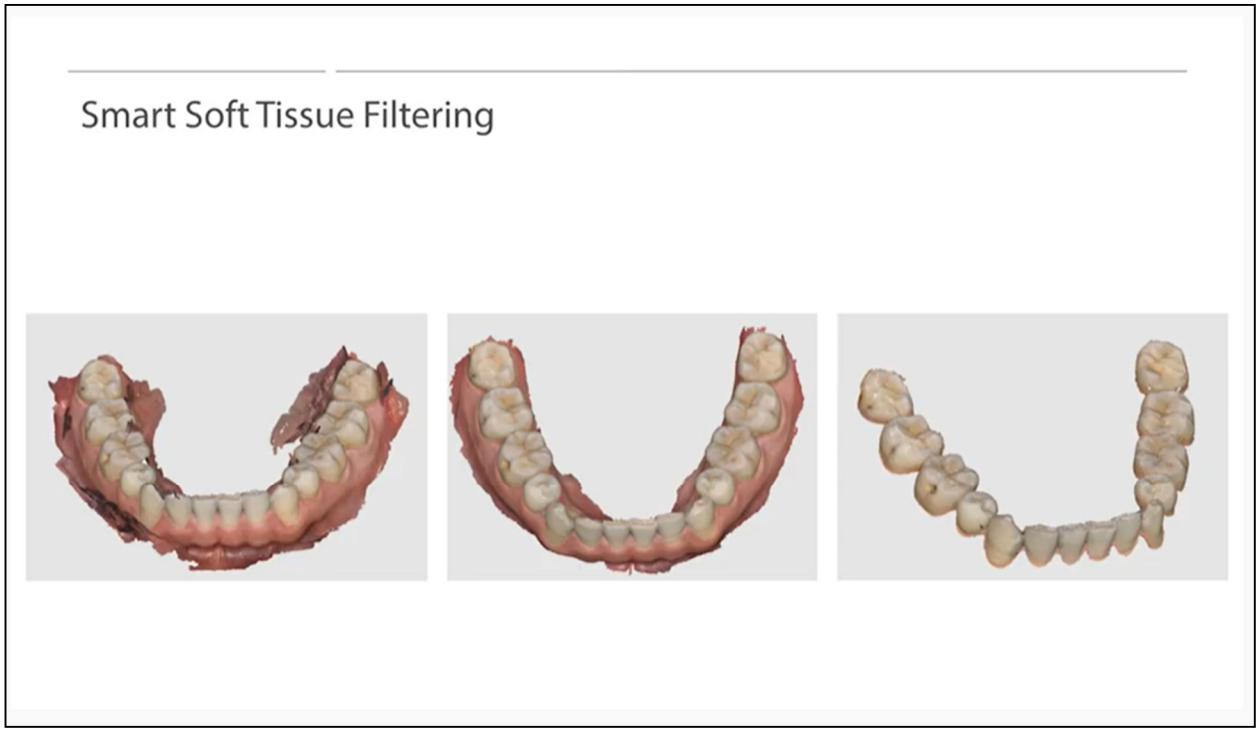
Smart soft tissue filtering

- removes unnecessary soft tissues depending on the selected filter.
- No filtering: Soft tissue will remain intact. This option is useful when scanning an edentulous case, dental model, or stone model.
- Teeth + Gingiva: removes soft tissues that interfere with the scan, leaving only the necessary gingiva. You can use this option for most of general scan cases.
- Teeth: removes all other data except for teeth and the least amount of gingiva. This option is effective when you need to perform additional scanning for only the teeth after you scanned the case using the "Teeth + Gingiva" option.

(*See*, *e.g.*, Pre-operative Mandible Scan Help Page (*available at* https://support.medit.com/hc/en-us/articles/360025015752-Pre-operation-mandible-scan).)

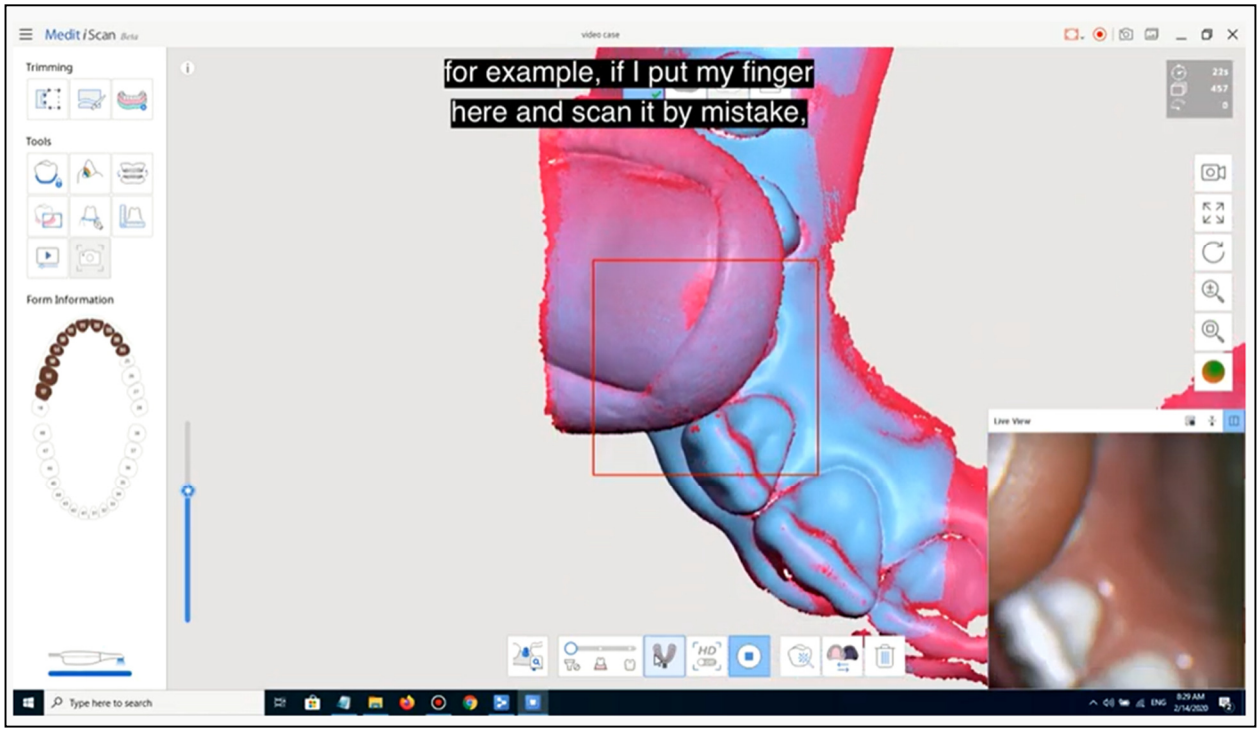


(*See*, *e.g.*, Intraoral Scan Strategy Video at 5:23.)

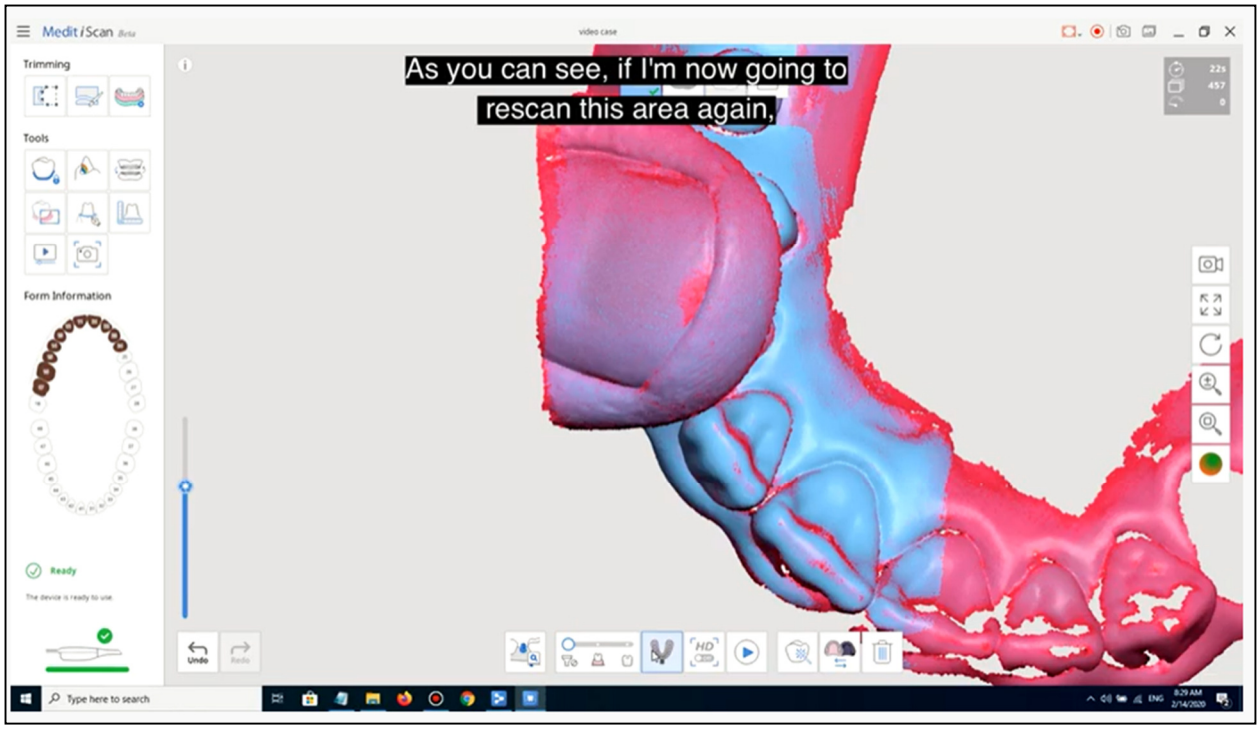


(Intraoral Scan Strategy Video at 5:45.)

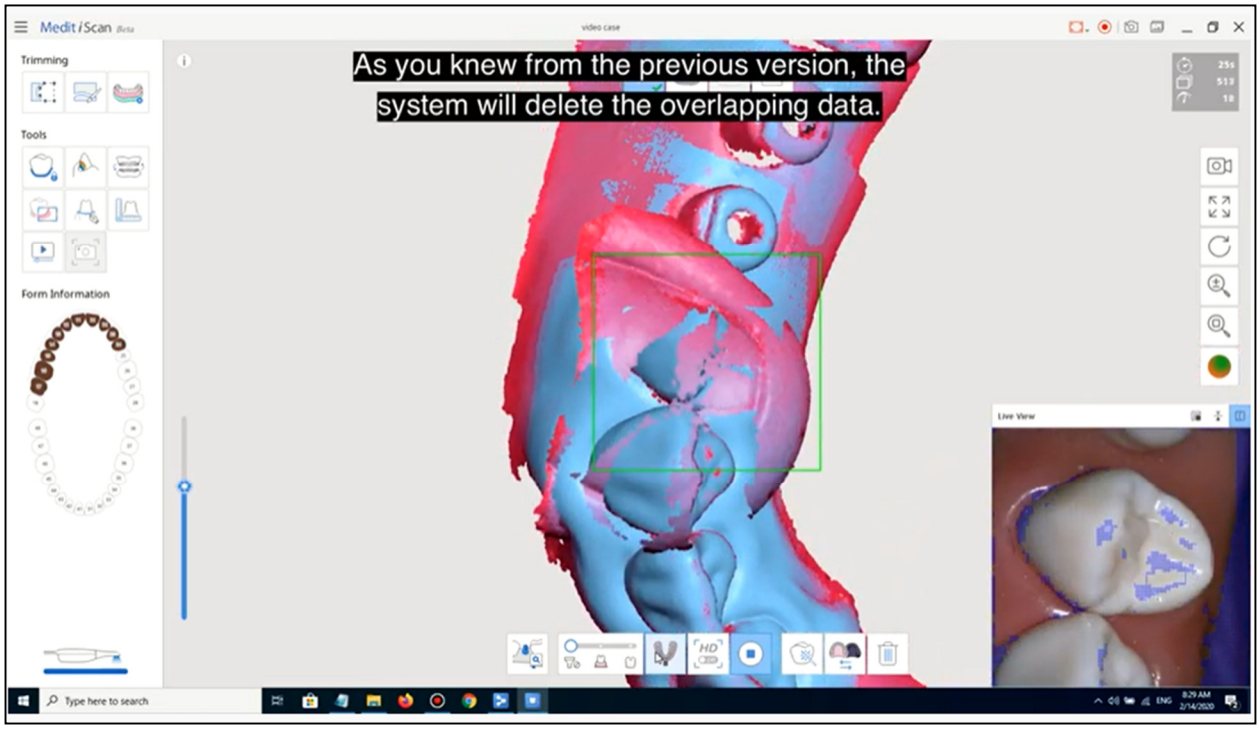
88. Medit's i500 intraoral scanners and related software (1) provide a first 3D representation of at least part of a surface by scanning at least part of the location. The i500 intraoral scanners and related software scan teeth in the oral cavity of a patient.



(Smart Scan Filtering Options in iScan - Medit Link Video at 3:54 (*available at* https://www.youtube.com/watch?v=qA85EeF0k4c).)

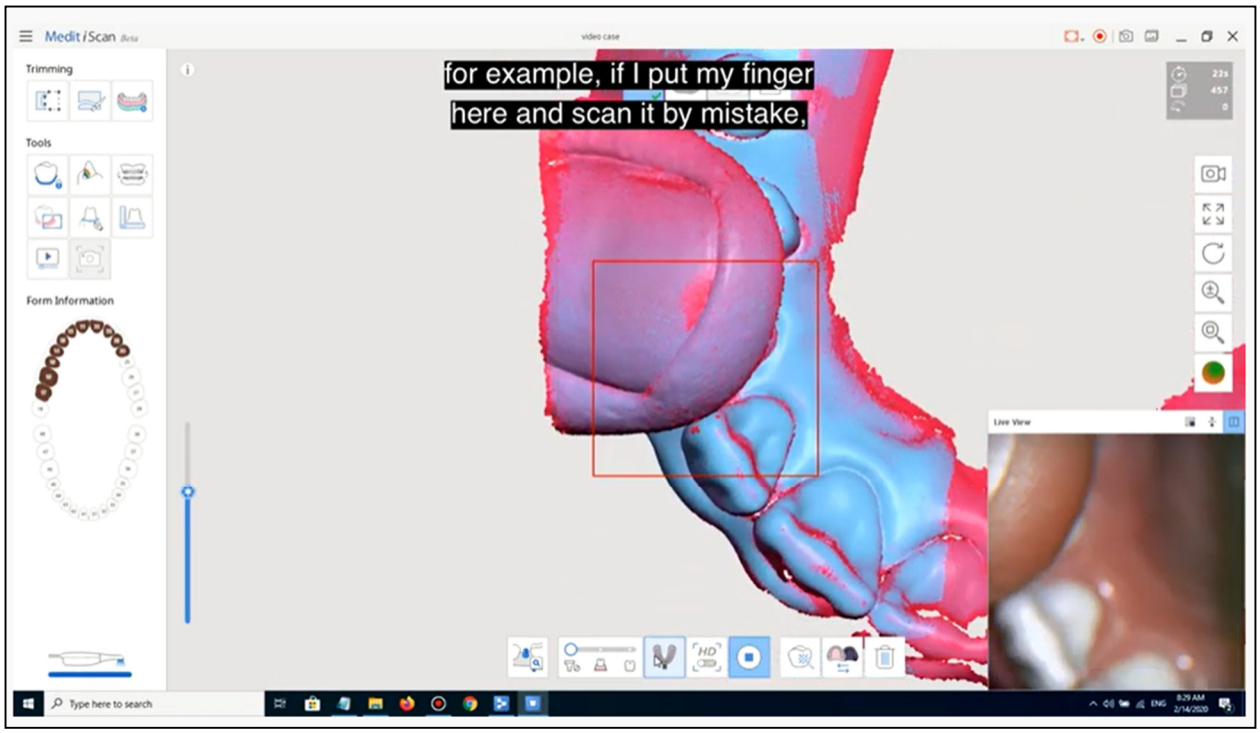

Medit i Scan
Trimming
Tools
Form Information
Ready
As you can see, if I'm now going to
rescan this area again,
Undo
Redo
Type here to search

(*Id.* at 3:56.)

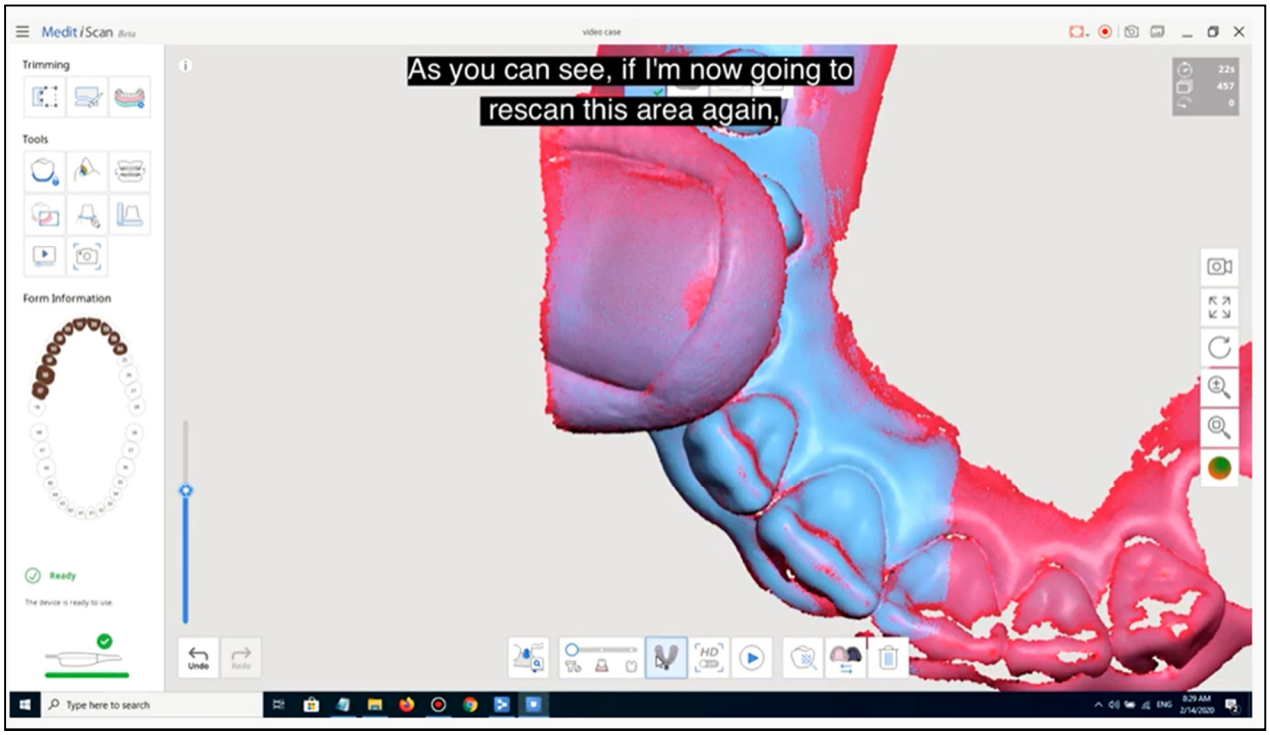

Medit i Scan
Trimming
Tools
Form Information
As you knew from the previous version, the
system will delete the overlapping data.
Live View
Type here to search

(*Id.* at 4:02; *see also* How to use global soft tissue filtering(beta) Video (*available at* https://www.youtube.com/watch?v=IqWIooLhXkk); 94 How to use the filtering function in iScan - Medit Link Video (*available at* https://www.youtube.com/watch?v=bZvG2SzGmzM).)

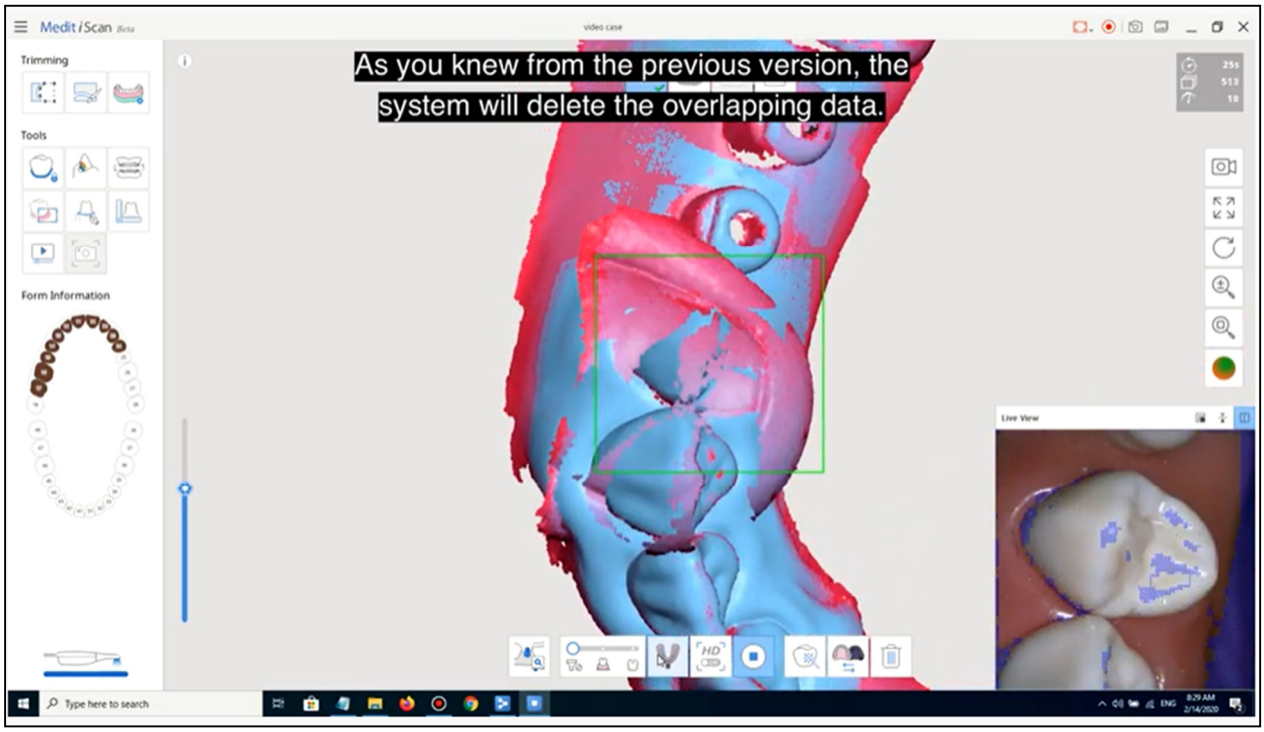
89. Medit's i500 intraoral scanners and related software (2) provide a second 3D representation of at least part of the surface by scanning at least part of the location.



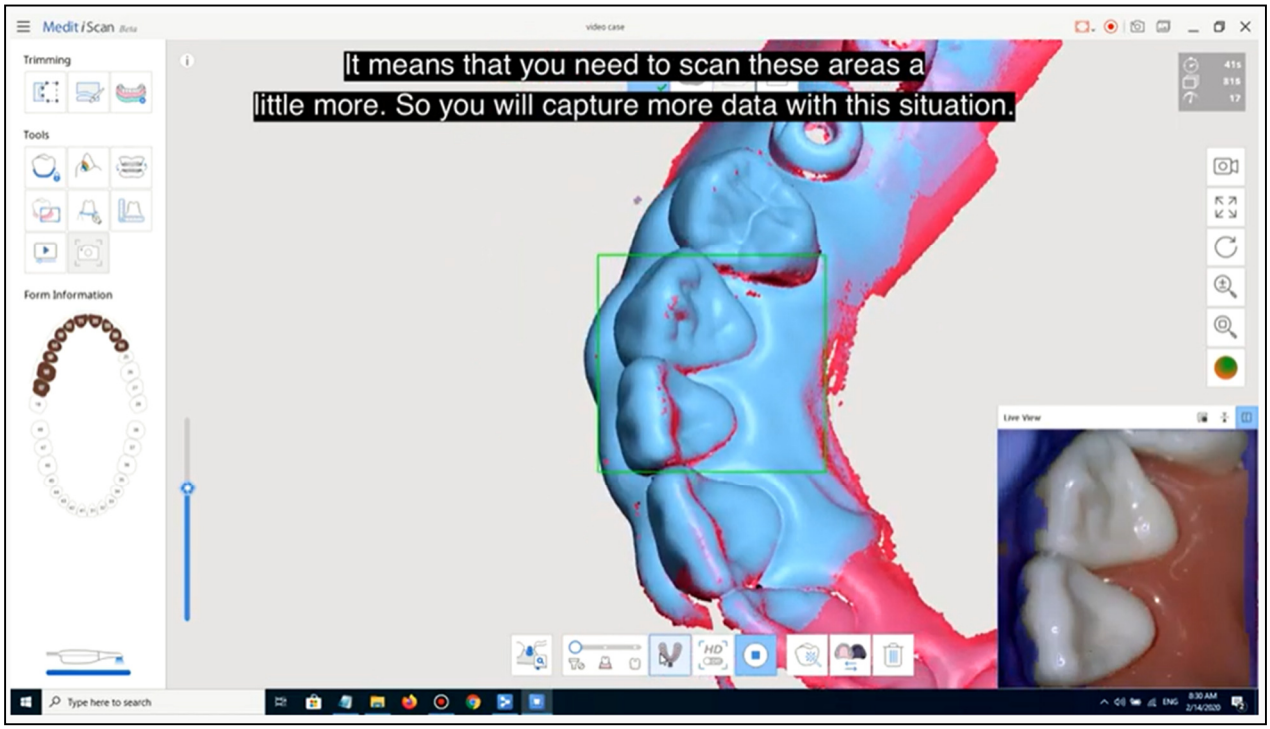
(Smart Scan Filtering Options in iScan - Medit Link Video at 3:54.)



(*Id.* at 3:56.)

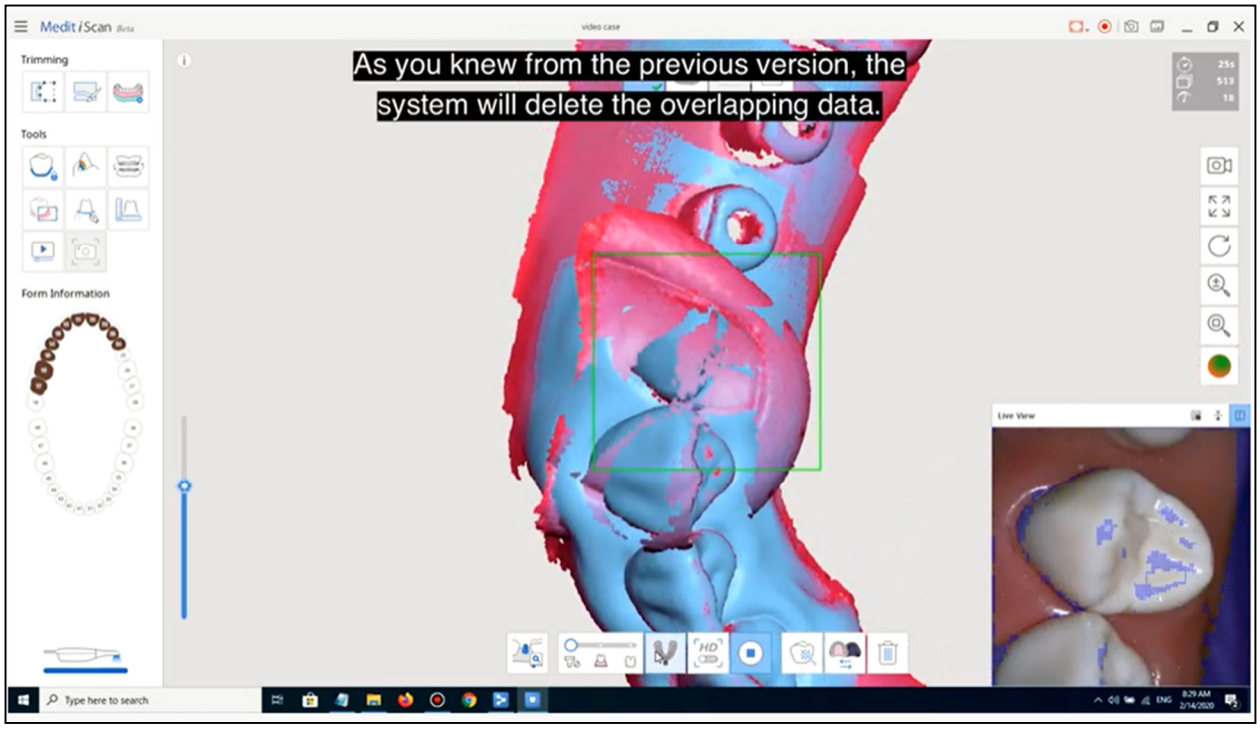


(*Id.* at 4:02.)



(*Id.* at 4:56; *see also* How to use global soft tissue filtering(beta) Video; 94 How to use the filtering function in iScan - Medit Link Video.)

90. Upon information and belief, Medit's i500 intraoral scanners and related software (3) determine for the first 3D representation a first excluded volume in space where no surface can be present in both the first 3D representation and the second 3D representation. Medit explained the functionality in a blog post and said "we are also currently testing a 'Global Soft Tissue Filtering' feature meant to auto-delete scan data recognized as 'noise data', such as the cheeks and the tongue. This feature is useful especially in cases where complete soft tissue retraction is difficult." (New iScan Functions Blog (*available at* https://blog.medit.com/medit/adjustment-scan-depth-filtering-levels; *see also* How to use global soft tissue filtering(beta) Video.) Additional videos and websites show the outcome of such a step:

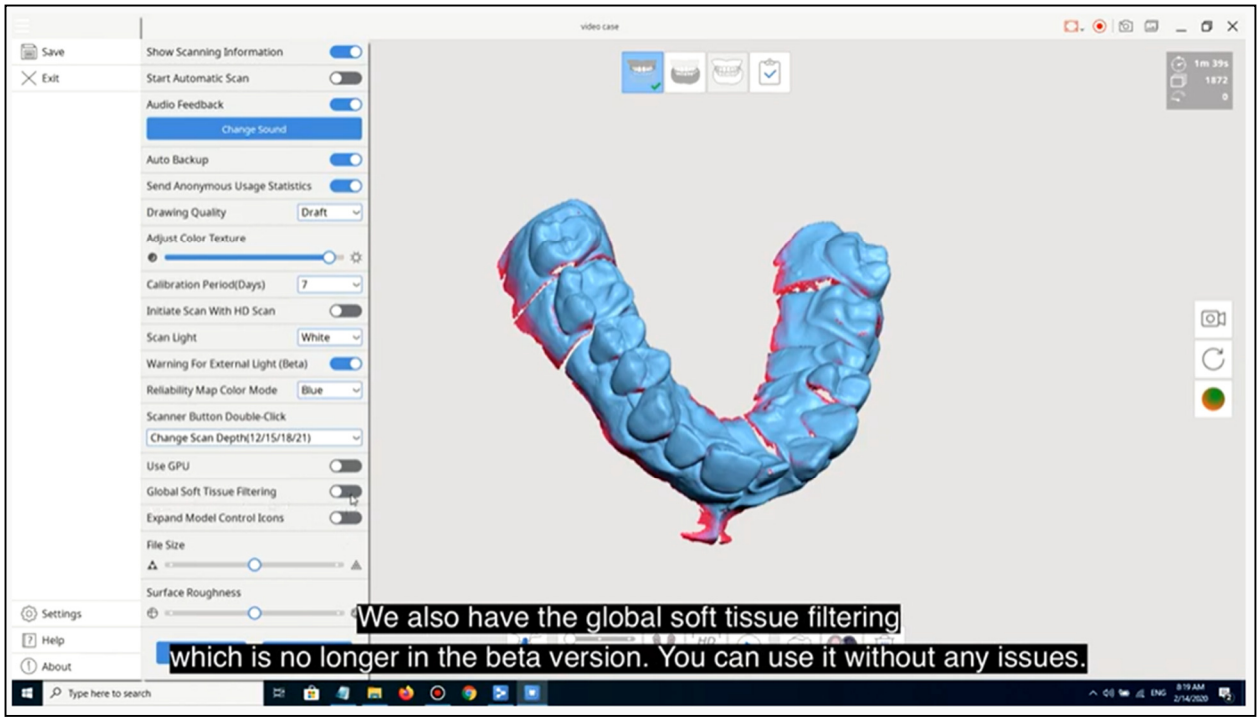


(Medit Link video at 4:02.)

Global Soft Tissue Filtering

- Deletes the soft tissue globally. The deletion process is performed during scanning and when exiting or changing the scan stage.

(Program Settings Help Page (*available at* https://support.medit.com/hc/en-us/articles/360025057232-Program-settings).)



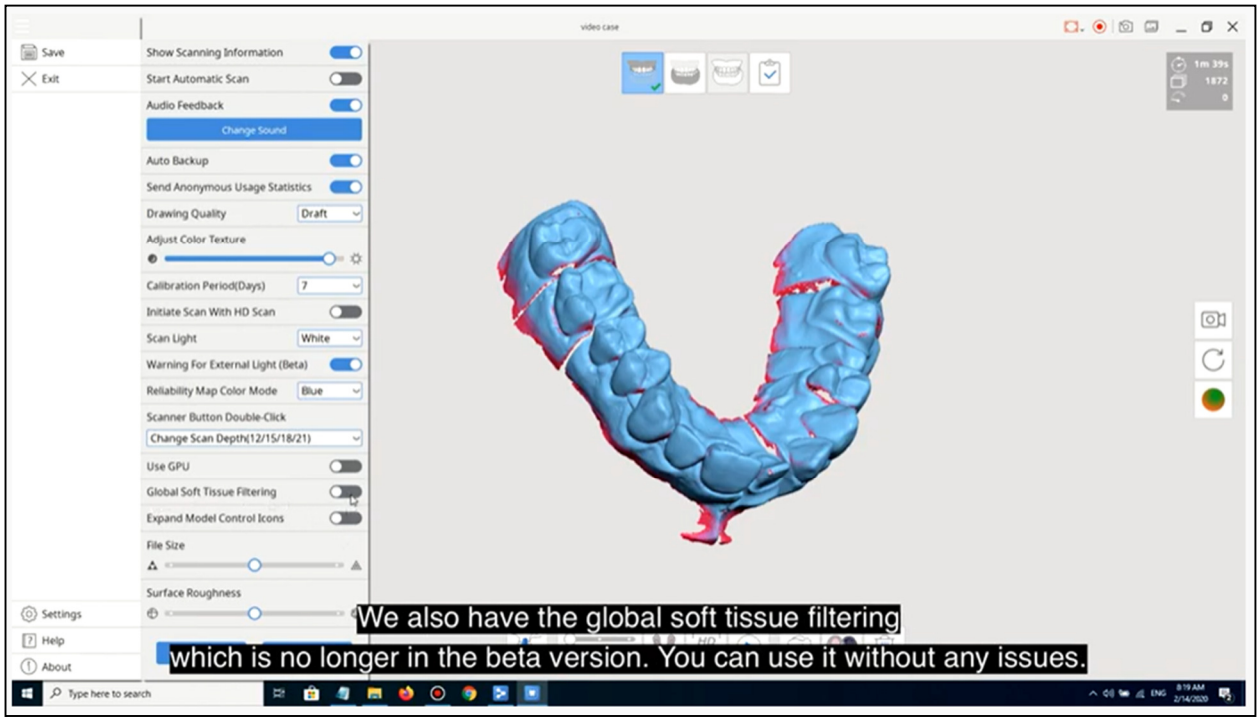
(Settings in iScan V1.4 - Medit Link Video at 8:55 (*available at* https://www.youtube.com/watch?v=63lSvhz2wuA).)

91. Upon information and belief, Medit's i500 intraoral scanners and related software perform a method wherein (4) if a portion of the surface in the second 3D representation is located in space in the first excluded volume, the portion of the surface in the second 3D representation is disregarded in the generation of the virtual 3D model. Medit explained the functionality in a blog post and said "we are also currently testing a 'Global Soft Tissue Filtering' feature meant to auto-delete scan data recognized as 'noise data', such as the cheeks and the tongue. This feature is useful especially in cases where complete soft tissue retraction is difficult." (New iScan Functions Blog; *see also* How to use global soft tissue filtering(beta) Video.)

Global Soft Tissue Filtering

- Deletes the soft tissue globally. The deletion process is performed during scanning and when exiting or changing the scan stage.

(Program Settings Help Page.)



(Settings in iScan V1.4 - Medit Link Video at 8:55.)

92. Medit has directly infringed the ’553 patent, including by practicing the patented method by, *e.g.*, using, testing and/or demonstrating the Medit Scanners and related software.

93. Medit has had knowledge of the ’553 patent from a date no later than the date of the filing of this Complaint. On information and belief, Medit had knowledge of the ’553 patent prior to the date of the filing of this Complaint by virtue of, *e.g.*, infringement litigation between the parties in the Düsseldorf district court involving 3Shape’s related European patents, EP 2 732 434 B1 and EP 3 401 876 B1, and Medit’s challenges to EP 2 732 434 B1 and EP 3 401 876 in the German Federal Patent Court filed on August 31, 2020 and September 3, 2020, respectively.

94. Medit also actively induces and has induced infringement of the ’553 patent under 35 U.S.C. § 271(b), either literally or under the doctrine of equivalents.

95. On information and belief, Medit directs and/or authorizes its agents, customers, and/or potential customers to make, use, sell, or offer for sale in the United States or import into the United States, the Accused Products.

96. On information and belief, Medit encouraged and facilitated infringement with specific intent by, for example, training its customers and potential customers to use the Medit Scanners and related software in a manner that infringes at least one claim of the ’553 patent, promoting the use of the Medit Scanners and related software in a way that infringes at least one claim of the ’553 patent to Medit’s customers and potential customers, and disseminating promotional and marketing material and product literature to those customers and potential customers encouraging use of the Medit Scanners and related software in a manner that infringes at least one claim of the ’553 patent. For example, Medit is aware that methods claimed in the ’553 patent are methods performed by the Accused Products and others that purchase and/or use the Accused Products and therefore, that purchasers and/or end users of the Accused Products have infringed and will infringe the ’553 patent.

97. Medit actively induces infringement of the ’553 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the Medit Scanners and related software and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides and technical information (including but not limited to the materials and videos identified in this Count of the Complaint) to third parties including but not limited to resellers, distributors, customers, potential customers, dentists, orthodontists, and/or other end users of the Medit Scanners and related software. Those third

parties directly infringe the ’553 patent at least by selling, offering to sell, and/or using the Medit Scanners and related software.

98. Medit has been and is now contributing to the infringement of the ’553 patent under 35 U.S.C. § 271(c), either literally or under the doctrine of equivalents.

99. Medit has actively, knowingly, and intentionally contributed to and continues to actively, knowingly, and intentionally contribute to the infringement of the ’553 patent by selling or offering to sell, and continuing to sell or offer for sale the Medit Scanners and related software within the United States and/or by importing the Medit Scanners and related software into the United States with knowledge that the infringing technology is especially made and/or especially adapted for use in infringement of the ’553 patent, is a material part of the patented invention, and is not a staple article or commodity of commerce suitable for substantial non-infringing use and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the Medit Scanners and related software do not have any substantial noninfringing uses. Medit has such knowledge at least because the claimed features of the ’553 patent are used by others including, but not limited to resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of Medit Scanners and related software.

100. On information and belief, Medit knew or should have known of the ’553 patent and has acted, and continues to act, in an egregious and wanton manner by infringing the ’553 patent. On information and belief, Medit’s infringement of the ’553 patent has been and continues to be willful and deliberate. 3Shape is a known pioneer in intraoral scanners with whom Medit knows and has familiarity. On information and belief, Medit knowingly developed,

has sold, sells and offers to sell the Accused Products for use in an infringing manner that was known to Medit or was so obvious that Medit should have known of its infringement.

101. 3Shape informed Medit of its infringement of the ’553 patent at least by virtue of the infringement litigation between the parties in the Düsseldorf district court involving 3Shape’s related European patents, EP 2 732 434 B1 and EP 3 401 876 B1, and Medit’s challenges to EP 2 732 434 B1 and EP 3 401 876 in the German Federal Patent Court filed on August 31, 2020 and September 3, 2020, respectively, yet Medit has continued to infringe the ’553 patent in an egregious and wanton manner that Medit knew or should have known amounted to infringement of the patent.

102. On information and belief, despite knowing its actions constituted infringement of the ’553 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the ’553 patent, Medit nevertheless continued its infringing actions, and continues to make, use and sell the Accused Products.

103. Medit’s acts of infringement have injured and damaged 3Shape and will continue to injure and damage 3Shape.

104. Medit’s actions have caused 3Shape to suffer irreparable harm resulting from the loss of its lawful patent rights and the loss of its ability to exclude others from making, using, selling, offering to sell and importing the Accused Products that have been and continue to be used to infringe the claims of the ’553 patent. On information and belief, Medit will continue these infringing acts unless enjoined by this court.

COUNT IV
(Infringement of U.S. Patent No. 10,695,151)

105. Plaintiff restates and incorporates by reference its allegations in paragraphs 1-104 of the Complaint as if fully set forth herein.

106. The ’151 patent discloses inventions related to methods and user interfaces for determining the shade of a patient’s tooth. In particular, the ’151 patent uses a digital 3D representation of the tooth that includes shape data and texture data and determines a tooth shade value for at least one point on the tooth based on the texture data. One advantage of the patent is that it allows for a dental restoration, such as a crown or bridge, to be designed and manufactured based on the tooth shape and shade of the patient’s natural teeth so that the dental restoration will not appear artificial and deteriorate the aesthetic impression of the patient’s smile.

107. On information and belief, Medit has directly, either literally or under the doctrine of equivalents, infringed at least one claim of the ’151 patent under 35 U.S.C. § 271(a), by making, using, selling, offering for sale in the United States and/or importing into the United States, without authority, the Medit Scanners and related software. By way of illustration only, the Medit Scanners and related software meet each and every element of one or more claims of the ’151 patent.

108. Medit has been and is now directly infringing, literally and/or under the doctrine of equivalents, at least claim 13 of the ’151 patent.

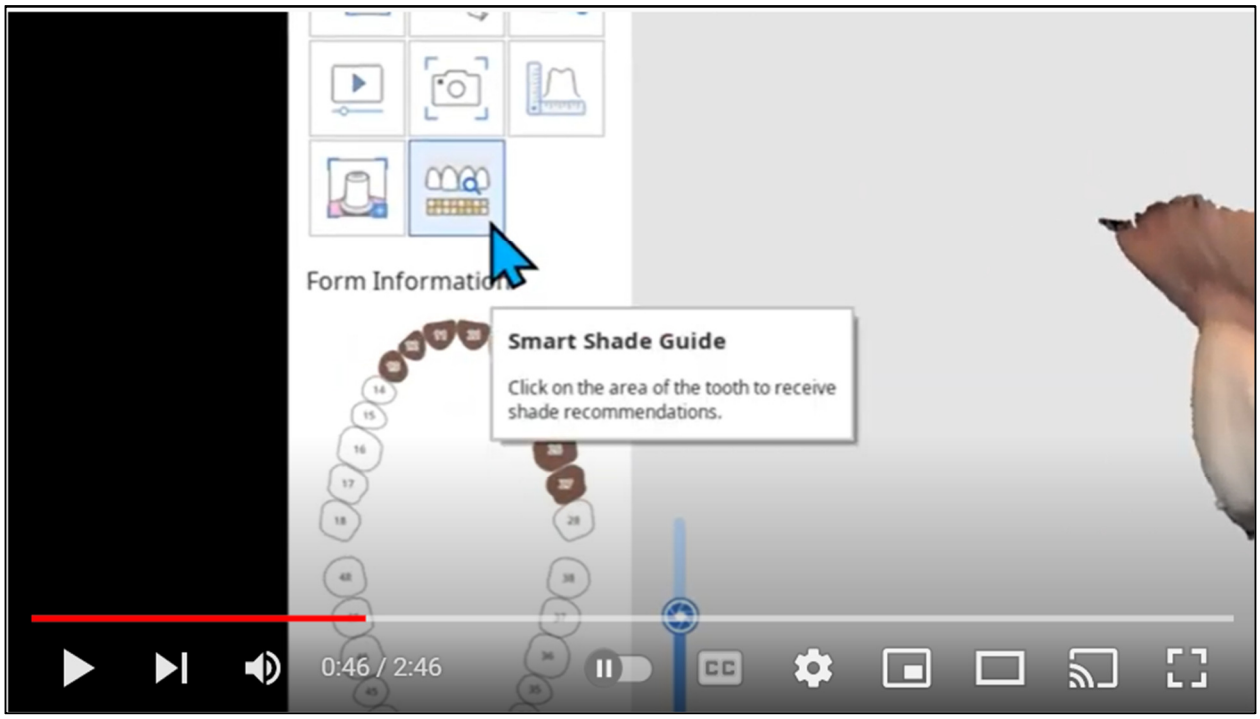
109. By way of illustration only, the Medit Scanners and related software meet each element of claim 13 of the ’151 patent.

110. The Medit Scanners and related software are configured to perform “[a] method for determining shade of a patient’s tooth.” That method comprises (1) “obtaining a digital 3D representation of the tooth, where the digital 3D representation comprises shape data and texture data for the tooth”; and (2) “determining a tooth shade value for at least one point on the tooth based on the texture data of the corresponding point of the digital 3D representation and on known texture values of one or more reference tooth shade values,” (3) “wherein the method

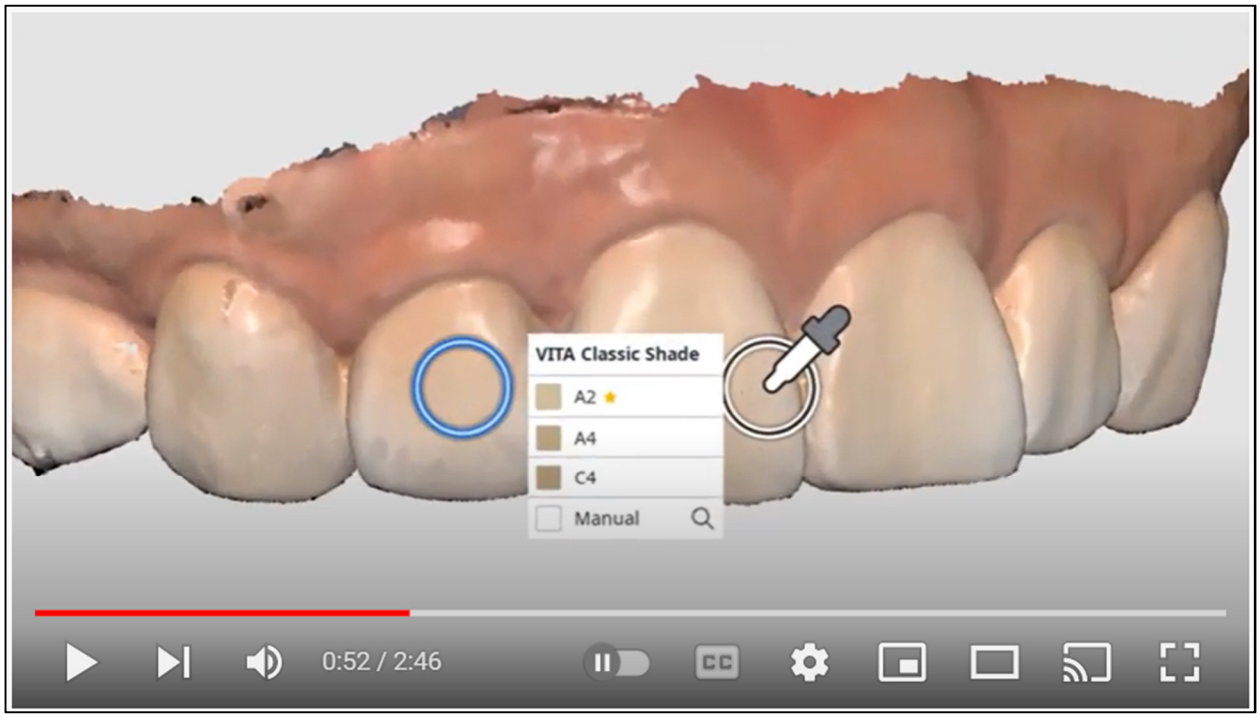
comprises creating a shade profile for the tooth from shade values determined one or more points on the tooth," (4) "wherein the tooth shade profile comprises a one or more tooth shade regions on the tooth surface where an average tooth shade is derived for each region from tooth shade values determined for a number of points within the region." (Ex. 4 at 22:37-53.)

111. Public documentation about the Medit Scanners and related software illustrates how the Medit Scanners and related software each satisfy all elements of representative claim 13 of the '151 patent. By way of example only, the information from user guides, brochures, training videos, assorted webpages, and marketing documents some of which are reproduced below show that the Medit Scanners and related software contain the infringing functionality.

112. The Medit Scanners and related software perform a method that determines shade of a patient's tooth. Medit Scan includes a feature called Smart Shade Guide that displays the color of a selected tooth based on the VITA Classical shade guide.

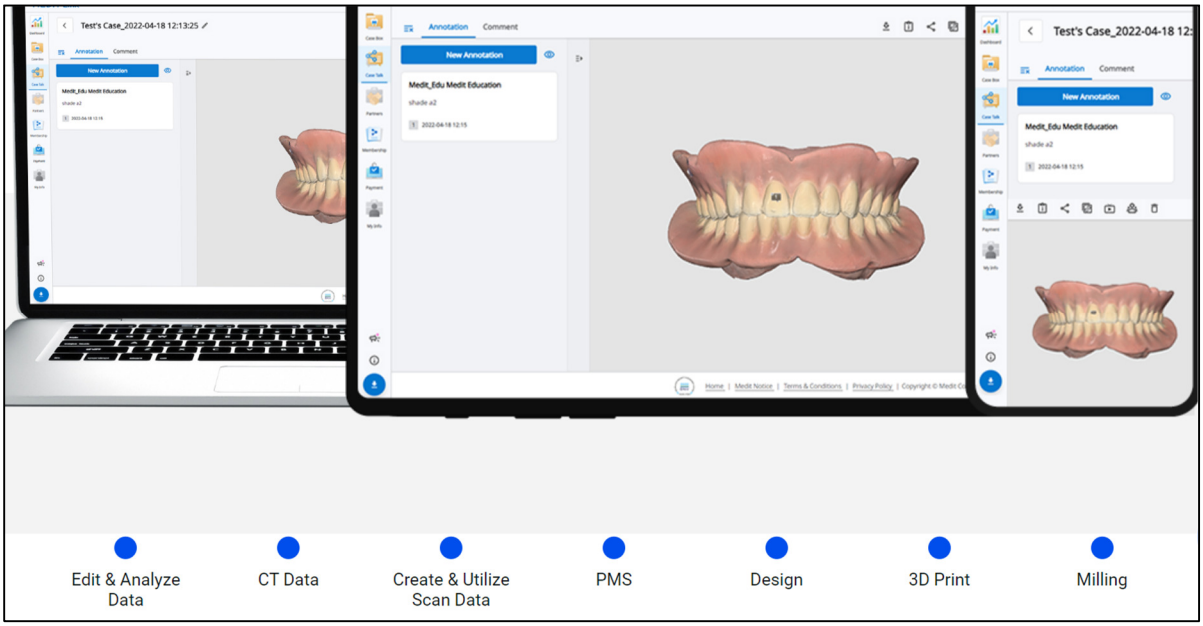


(What's new in Medit Scan for Clinics v1.8 [ENG] at 0:46 (*available at* https://www.youtube.com/watch?v=8P_qbMhmxOg).)

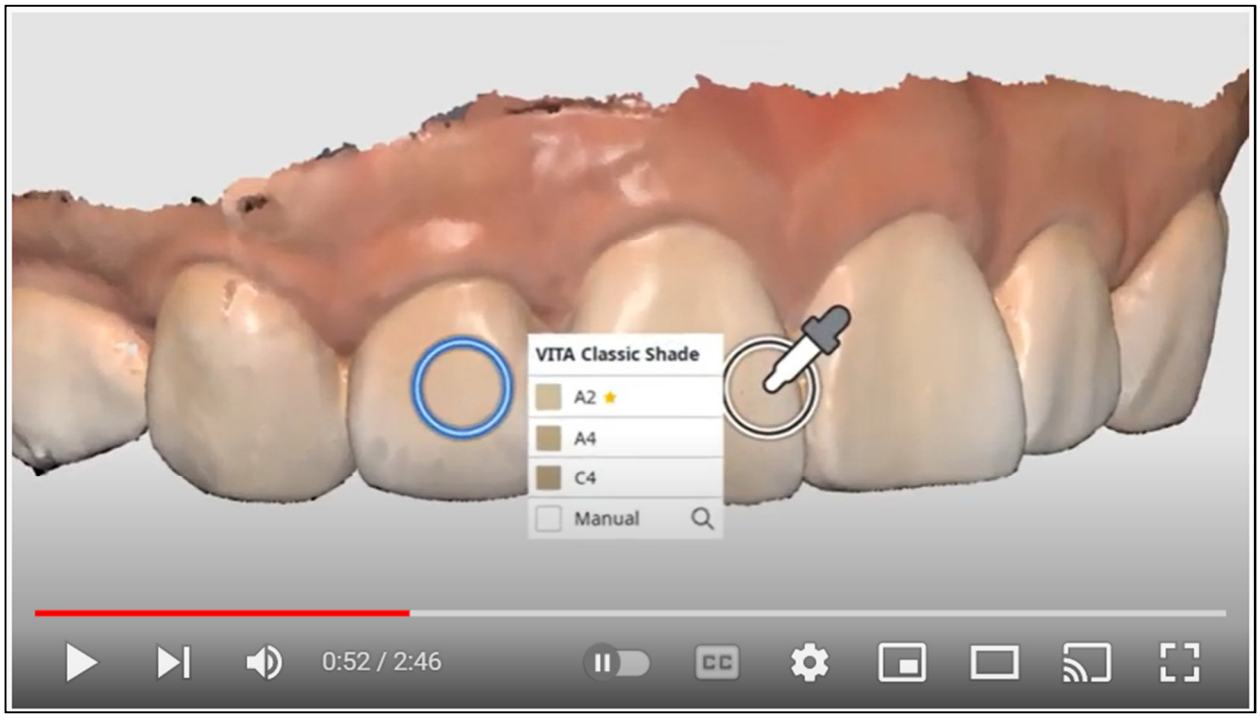


(*Id.* at 0:52.)

113. The Medit Scanners and related software (1) obtain a digital 3D representation of the tooth, where the digital 3D representation comprises shape data and texture data for the tooth. Medit Scan obtains a digital 3D representation of the tooth with shape data and texture data of the tooth from the Medit Scanners.

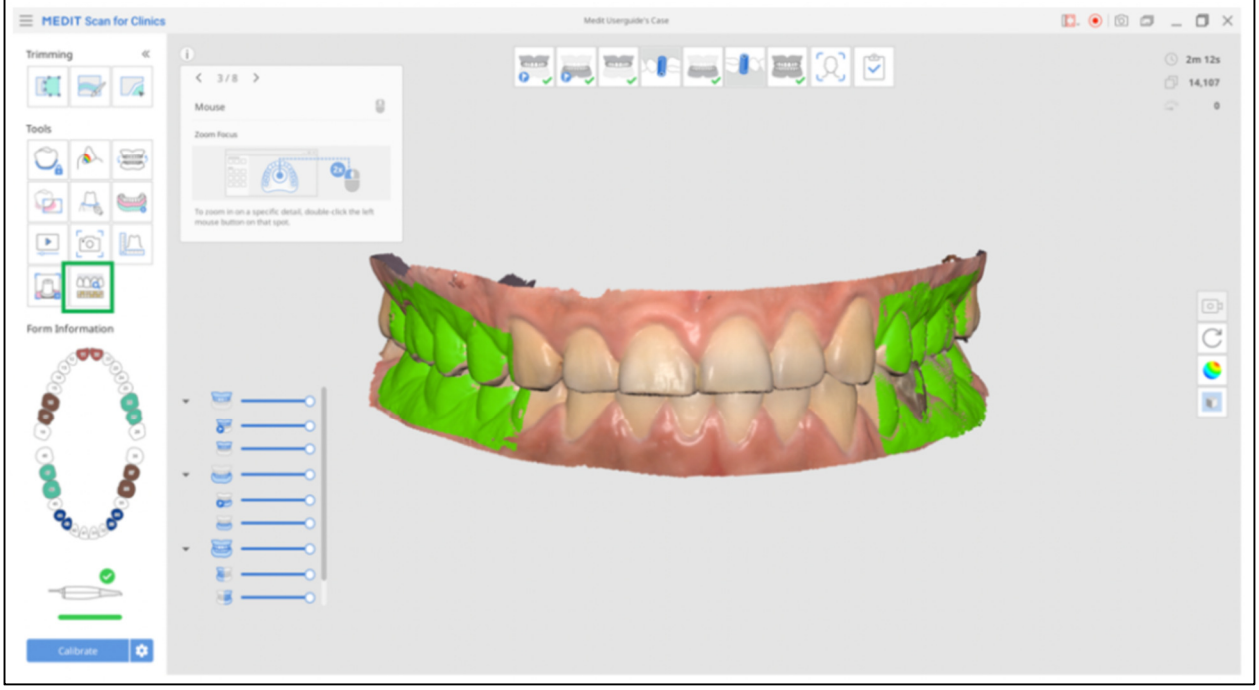


(Medit i700 Wireless Webpage 2.)



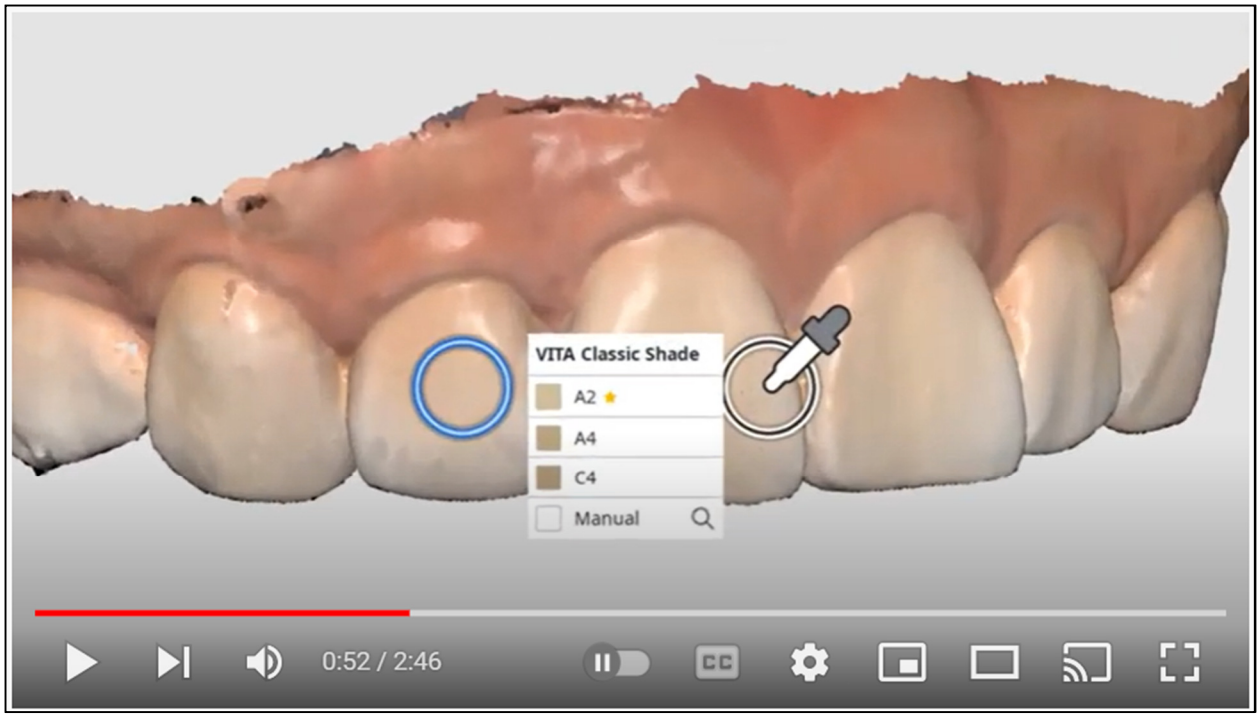
(What's new in Medit Scan for Clinics v1.8 [ENG] at 0:52.)

1. After you've collected the scan data, click on the "Smart Shade Guide" icon located on the left side in your Toolbox.



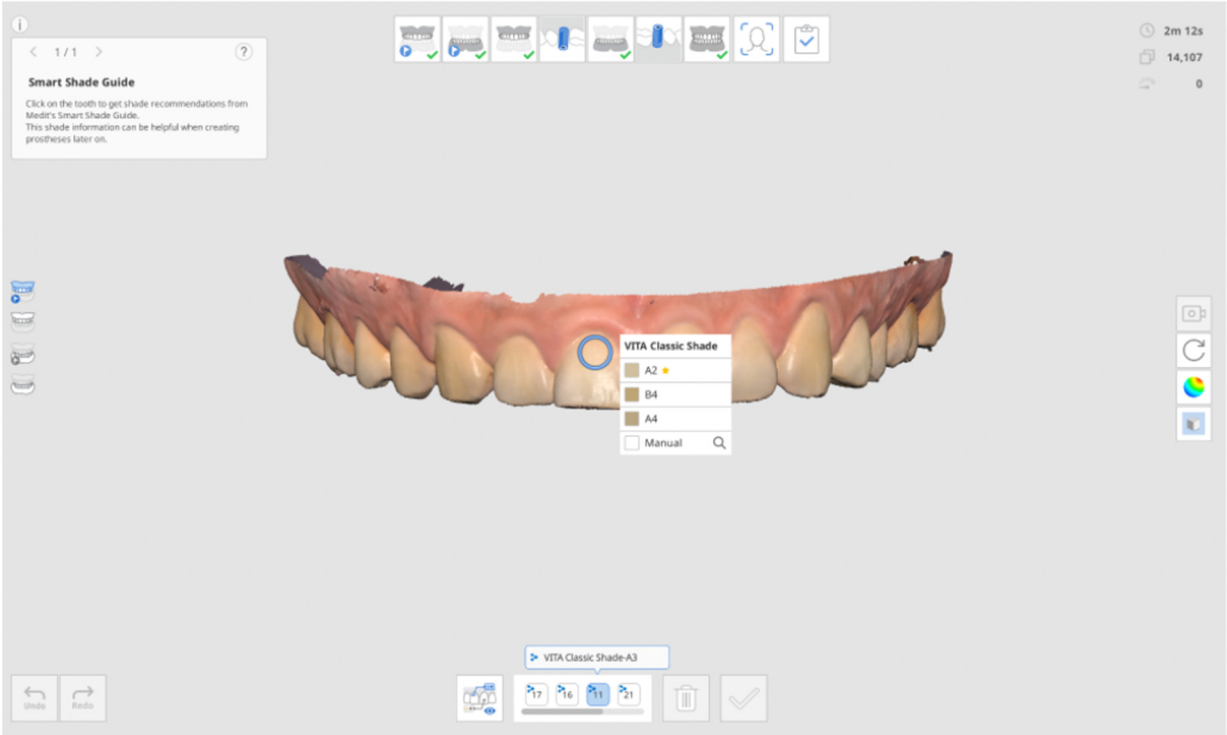
(Smart Shade Guide Help Page (*available at* https://support.medit.com/hc/en-us/articles/5706640244377-Smart-shade-guide).)

114. The Medit Scanners and related software (2) determine a tooth shade value for at least one point on the tooth based on the texture data of the corresponding point of the digital 3D representation and on known texture values of one or more reference tooth shade values. Medit Scan determines and displays the shade value of a selected tooth based on the VITA Classical shade guide which comprises reference tooth shade values.



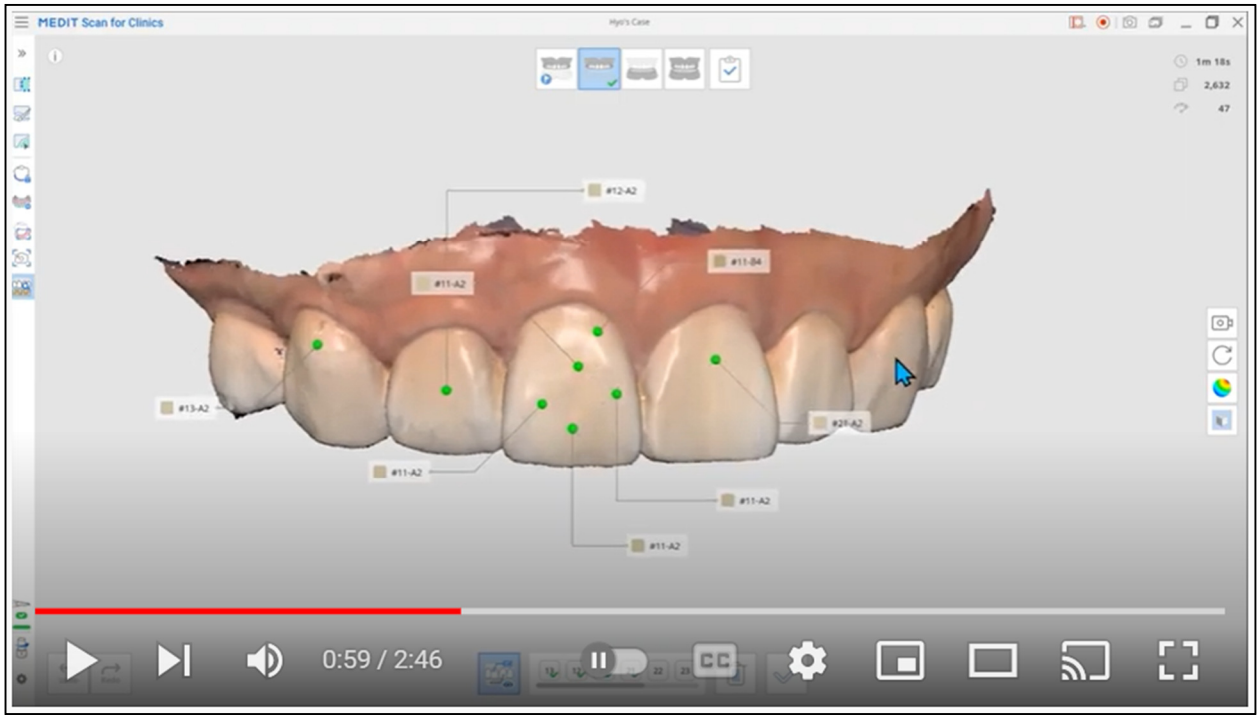
(What's new in Medit Scan for Clinics v1.8 [ENG] at 0:52.)

5. Left-click on the tooth area to receive shade recommendations. The star icon indicates the closest matching shade. Complete this step by clicking on your desired shade.

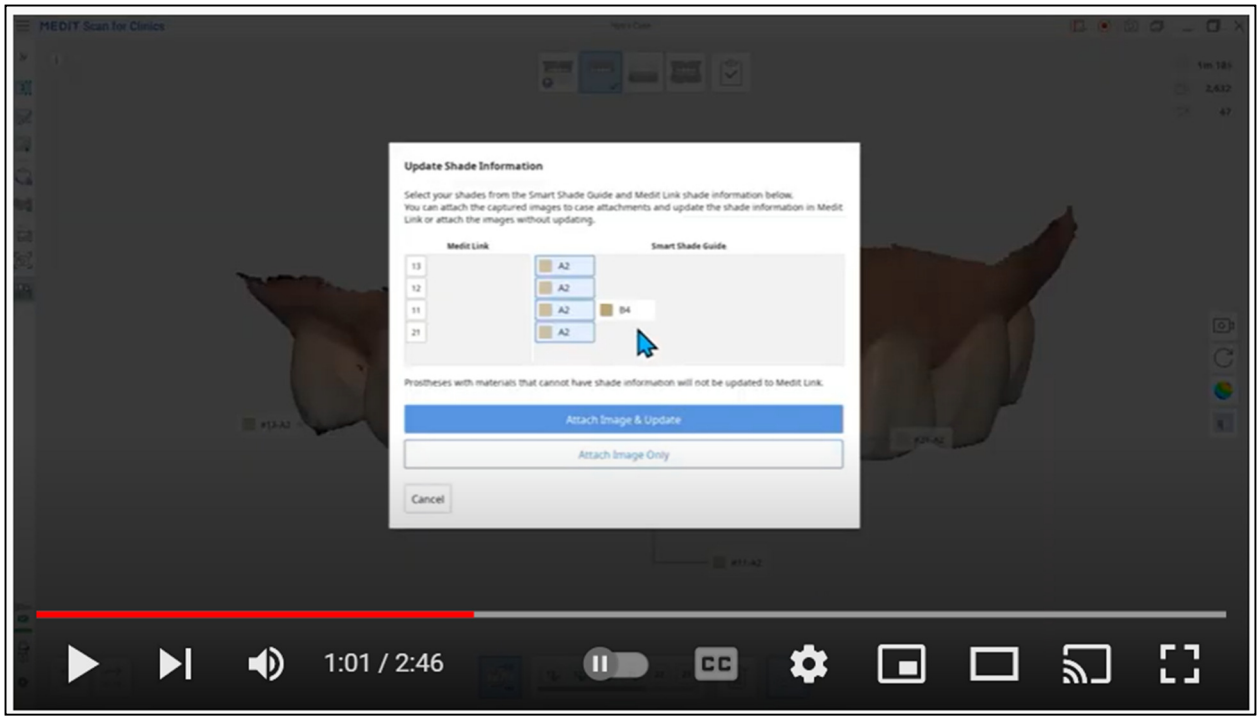


(Smart Shade Guide Help Page.)

115. Upon information and belief, the Medit Scanners and related software are (3) configured to create a shade profile for the tooth from shade values determined one or more points on the tooth.



(What's new in Medit Scan for Clinics v1.8 [ENG] at 0:59.)



(*Id.* at 1:01.)

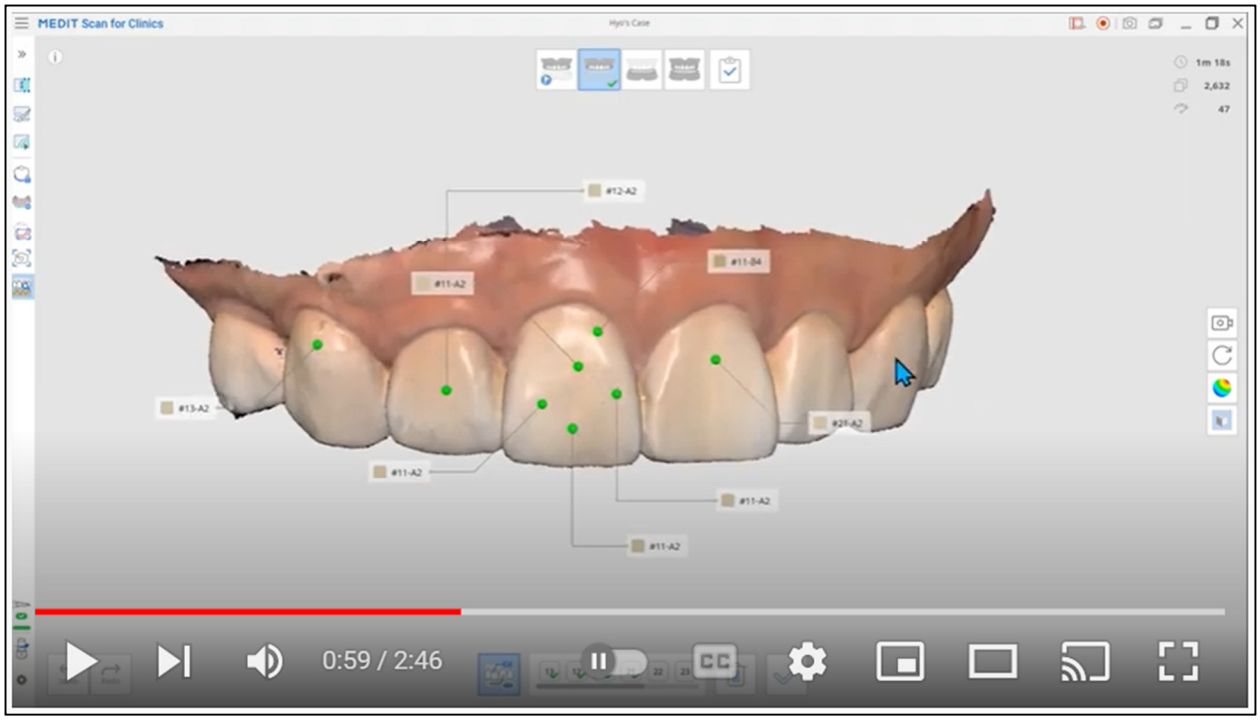
- The Smart Shade Guide will recommend the closest shade using data analysis.

Click on a tooth area of the scan data to receive A.I.-powered shade recommendations.

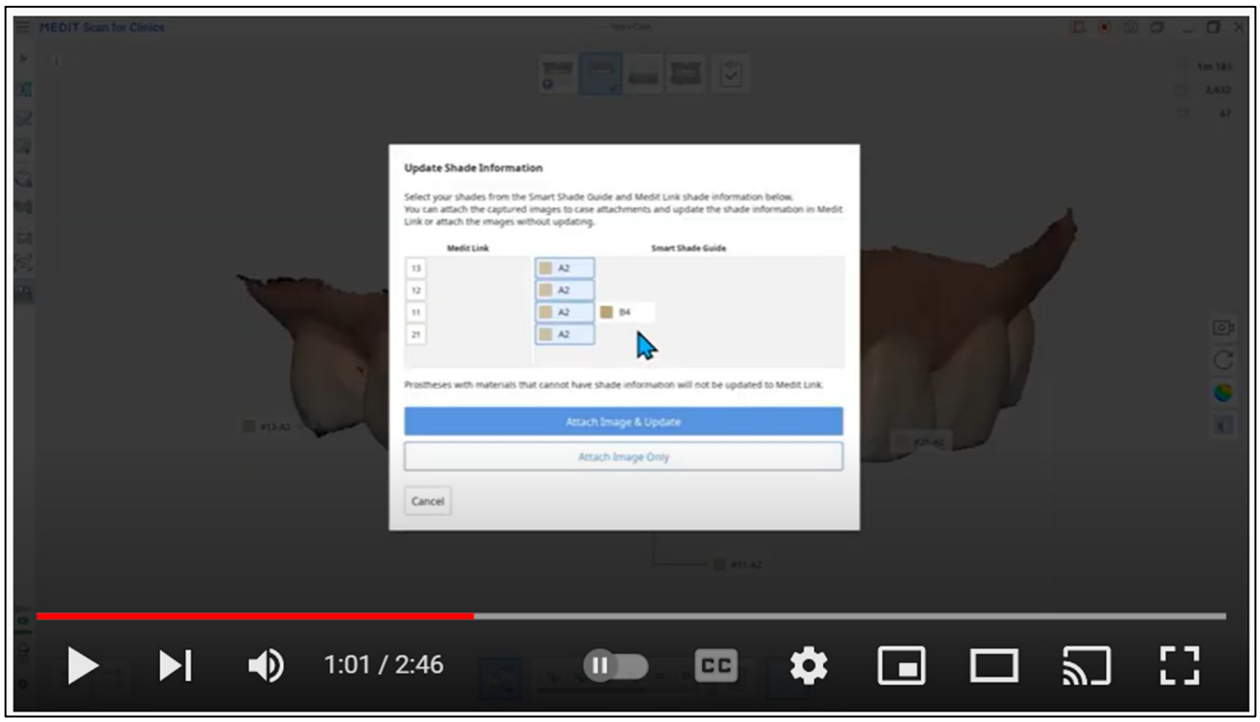
- You will receive three recommendations and the shade with a star represents the shade with the highest accuracy.

(Smart Shade Guide Help Page.)

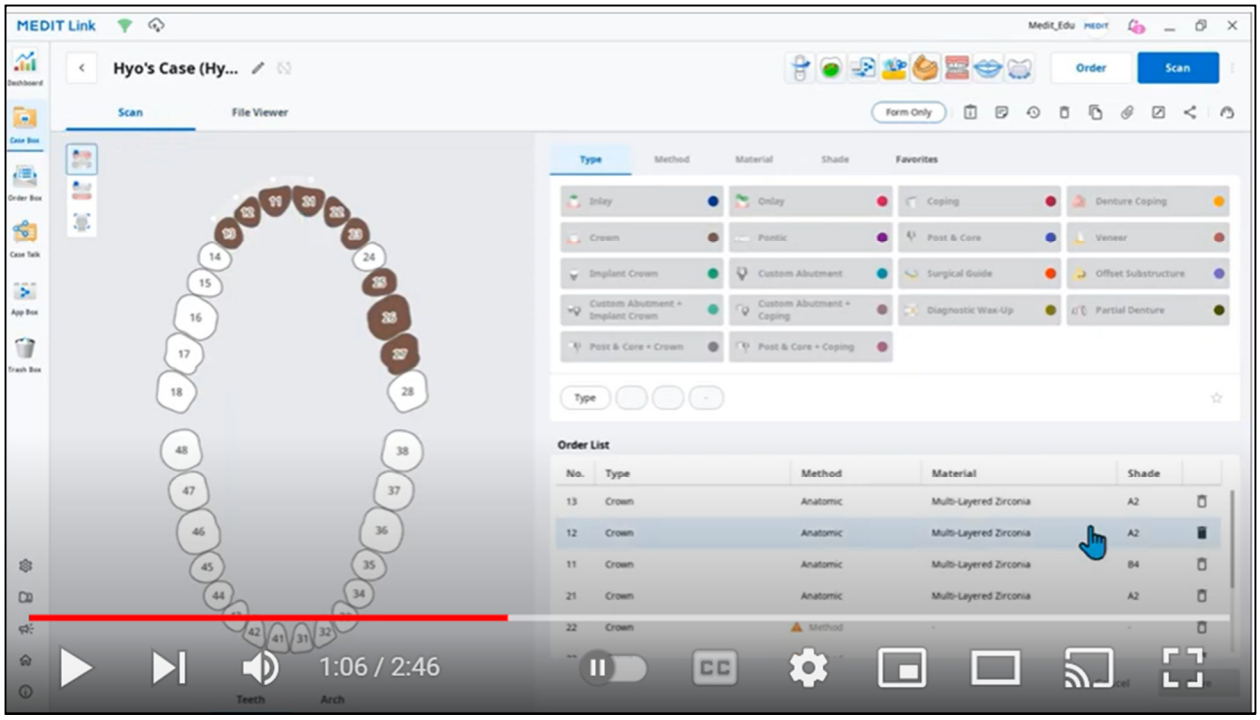
116. Upon information and belief, the tooth shade profile the Medit Scanners and related software create (4) comprises a one or more tooth shade regions on the tooth surface where an average tooth shade is derived for each region from tooth shade values determined for a number of points within the region.



(What's new in Medit Scan for Clinics v1.8 [ENG] at 0:59.)



(*Id.* at 1:01.)



(*Id.* at 1:06.)

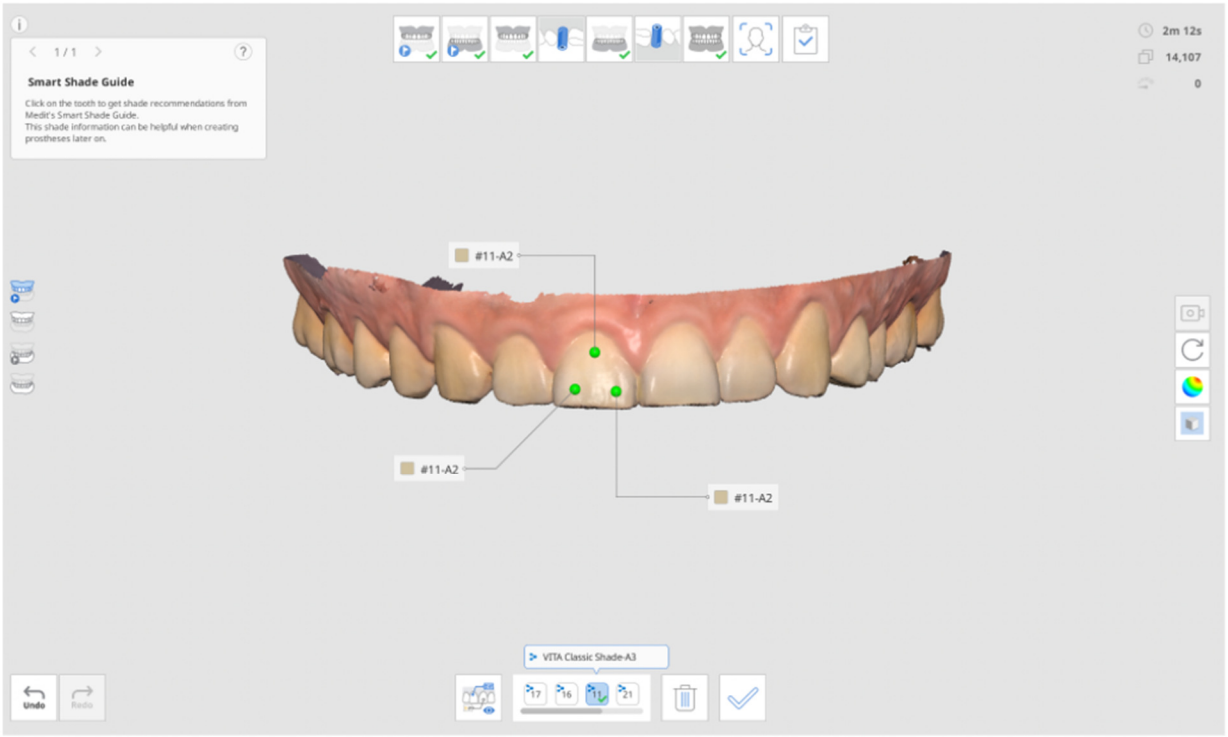
- The Smart Shade Guide will recommend the closest shade using data analysis.

Click on a tooth area of the scan data to receive A.I.-powered shade recommendations.

- You will receive three recommendations and the shade with a star represents the shade with the highest accuracy.

(Smart Shade Guide Help Page.)

6. You can save up to five shades per tooth.



(*Id.*)

117. Medit has directly infringed the ’151 patent, including by making, using, selling, offering for sale in the United States, and importing into the United States, products that contain the computer program product disclosed in the ’151 patent. Further, Medit uses the patented computer program product, *e.g.*, by testing and/or demonstrating the Smart Shade Guide feature.

118. Medit has had knowledge of the ’151 patent from a date no later than the date of the filing of this Complaint.

119. Medit also actively induces and has induced infringement of the ’151 patent under 35 U.S.C. § 271(b), either literally or under the doctrine of equivalents.

120. On information and belief, Medit encouraged and facilitated infringement with specific intent by, for example, training its customers to use the Smart Shade Guide feature in a manner that infringes at least one claim of the ’151 patent, promoting the use of the Smart Shade

Guide feature in a manner that infringes at least one claim of the ’151 patent to Medit’s customers, and disseminating promotional and marketing material and product literature to those customers encouraging use of the Smart Shade Guide feature in a manner that infringes at least one claim of the ’151 patent. For example, Medit is aware that the features claimed in the ’151 patent are features in the Accused Products and are features used by others that purchase the Accused products and, therefore, that purchasers and/or end users of the Accused Products will infringe the ’151 patent.

121. Medit actively induces infringement of the ’151 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the Smart Shade Guide feature and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides and technical information (including but not limited to the materials and videos identified in this Count of the Complaint) to third parties including but not limited to resellers, distributors, customers, potential customers, dentists, orthodontists, and/or other end users of the Smart Shade Guide feature. Those third parties directly infringe the ’151 patent at least by selling, offering to sell, and/or using the Smart Shade Guide feature.

122. Medit has been and is now contributing to the infringement of the ’151 patent under 35 U.S.C. § 271(c), either literally or under the doctrine of equivalents.

123. Medit has actively, knowingly, and intentionally contributed to and continues to actively, knowingly, and intentionally contribute to the infringement of the ’151 patent by selling or offering to sell, and continuing to sell or offer for sale the Smart Shade Guide feature within the United States and/or by importing the Smart Shade Guide feature into the United States with knowledge that the infringing technology in the Smart Shade Guide feature is especially made and/or especially adapted for use in infringement of the ’151 patent, is a material part of the

patented invention, and is not a staple article or commodity of commerce suitable for substantial non-infringing use and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the Smart Shade Guide feature do not have any substantial noninfringing uses. Medit has such knowledge at least because the claimed features of the ’151 patent are used by others including, but not limited to resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the Smart Shade Guide feature.

124. On information and belief, Medit knew or should have known of the ’151 patent and has acted, and continues to act, in an egregious and wanton manner by infringing the ’151 patent. On information and belief, Medit’s infringement of the ’151 patent has been and continues to be willful and deliberate. 3Shape is a known pioneer in intraoral scanners with whom Medit knows and has familiarity. On information and belief, Medit knowingly developed, has sold, sells and offers to sell the Accused Products in an infringing manner that was known to Medit or was so obvious that Medit should have known of its infringement.

125. On information and belief, despite knowing its actions constituted infringement of the ’151 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the ’151 patent, Medit nevertheless continued its infringing actions, and continues to make, use and sell the Accused Products.

126. Medit’s acts of infringement have injured and damaged 3Shape and will continue to injure and damage 3Shape.

127. Medit’s actions have caused 3Shape to suffer irreparable harm resulting from the loss of its lawful patent rights and the loss of its ability to exclude others from making, using,

selling, offering to sell and importing the inventions of the '151 patent. On information and belief, Medit will continue these infringing acts unless enjoined by this court.

PRAYER FOR RELIEF

WHEREFORE, 3Shape respectfully requests that this Court:

a. enter a judgment that 3Shape is the owner of all right, title, and interest in and to the patents-in-suit, together with all the rights of recovery under such patents for past and future infringement thereof;

b. enter a judgment that Medit has infringed each of the patents-in-suit;

c. enter a judgment that the patents-in-suit are valid and enforceable;

d. preliminarily and permanently enjoin Medit, its parents, subsidiaries, affiliates, agents, servants, employees, attorneys, representatives, successors and assigns, and all others in active concert or participation with them from infringing the patents-in-suit;

e. order an award of damages to 3Shape in an amount adequate to compensate 3Shape for Medit's infringement, said damages to be no less than a reasonable royalty;

f. enter a judgment that the infringement was willful and treble damages pursuant to 35 U.S.C. § 284;

g. order an accounting to determine the damages to be awarded to 3Shape as a result of Medit's infringement, including an accounting for infringing sales not presented at trial and award additional damages for any such infringing sales.

h. Assess pre-judgment and post judgment interest and costs against Medit, together with an award of such interest and costs, in accordance with 35 U.S.C. § 284;

i. Render a finding that this case is "exceptional" and award to 3Shape its costs, expenses and reasonable attorneys' fees, as provided by 35 U.S.C. § 285; and

j. grant such other and further relief as the Court may deem proper and just.

DEMAND FOR JURY TRIAL

3Shape hereby respectfully requests a trial by jury of all issues so triable, pursuant to FED. R. CIV. P. 38.

Date: May 2, 2022

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