

FitMeter

Preliminary Data

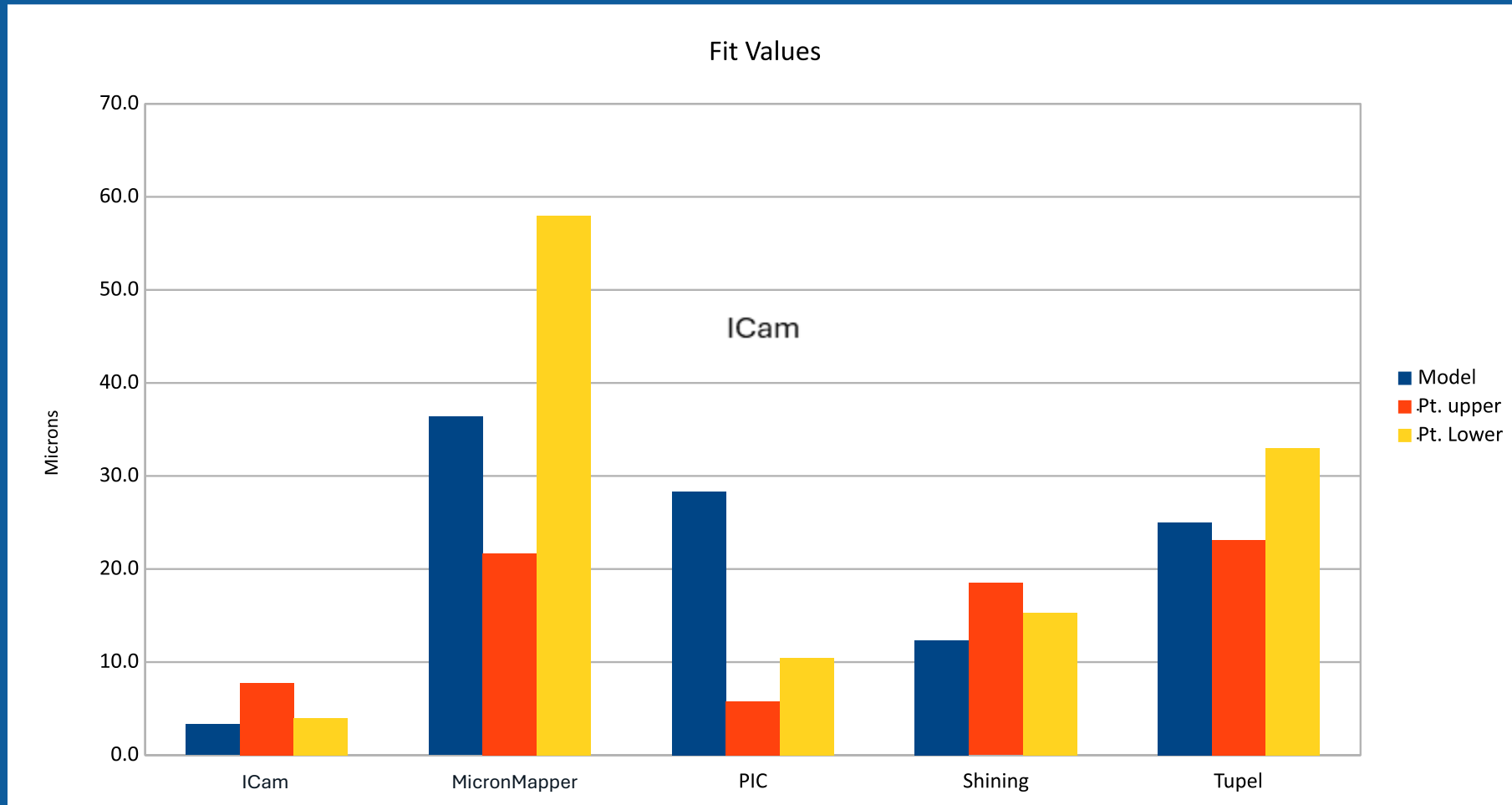
FitMeter Double Measurement Protocol

Measurements: Take two measurements with no changes or movements of the Scanbodies

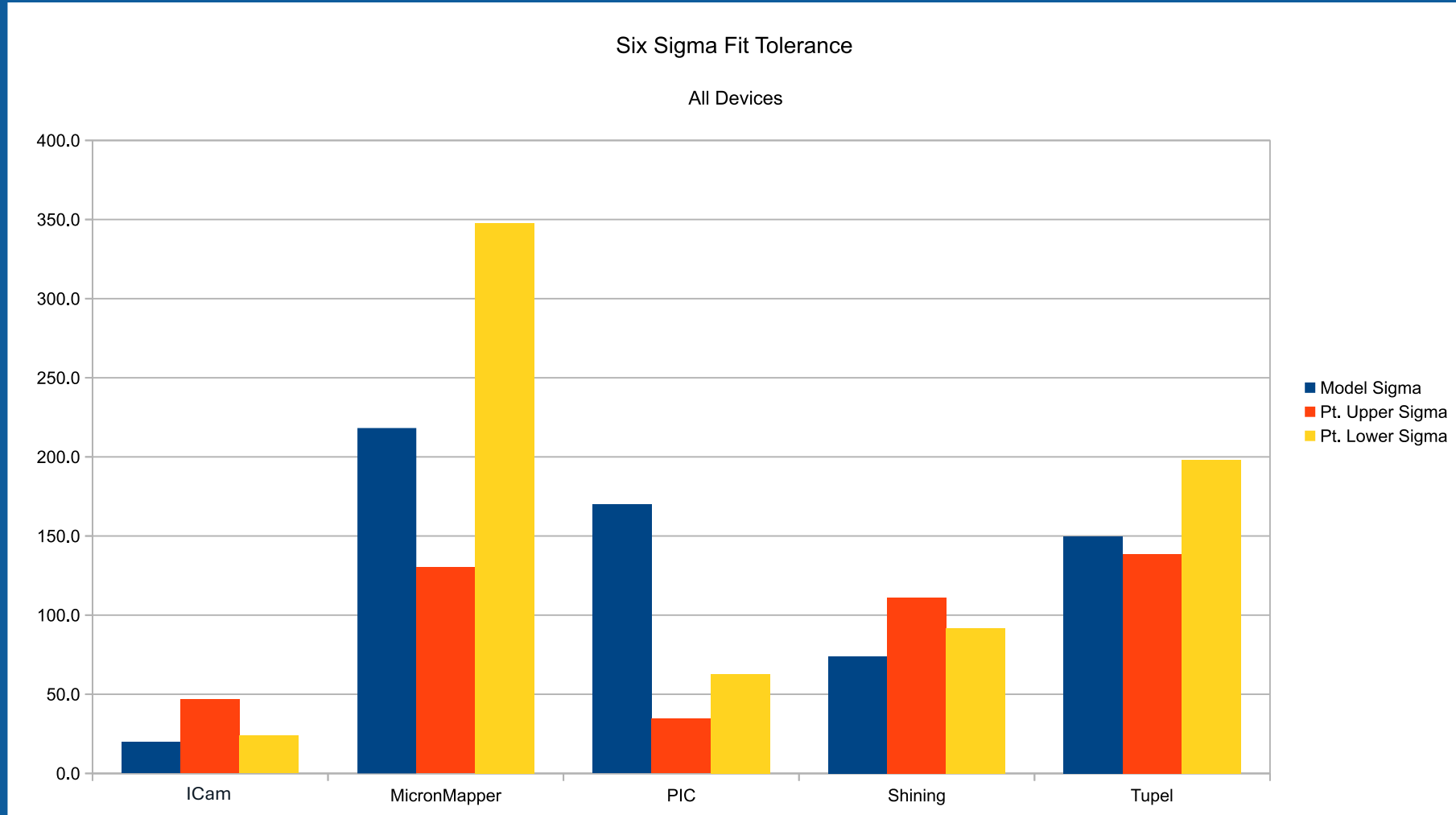
Analysis: If the export is not an XML or text file, import the STL representing the implant positions into exocad

1. Measure the implant positions of each dataset / arch and design a bar resulting in an STL and ".constructioninfo" file
2. Export the first .constructioninfo file as Data Set 1 (DS1)
3. Export the second .constructioninfo file as Data Set 2 (DS2)
4. Import the .constructioninfo files into the FitMeter application
5. Run the analysis

Summary of Fit Values



Summary of Six Sigma Fit Tolerance



In Vivo: 4 Implant Mandible



←

USER
DEVICE
CASE

Dr. Dunlop
ICam
Patient Lower

FIT

±4.0 μm

6σ FIT TOLERANCE

±24.0 μm

IMPLANT # 45

Fit: 5.6 μm

6σ Tol: 33.8 μm



US

FDI

45

42

32

35



INFO

LOGIC

VISUAL LEGEND

● WITHIN TOLERANCE (≤ 30MM)

● OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

US/FDI Toggle

US

FDI

30

28

26

23

21

19

US

FDI

46

44

42

32

34

36

Implant 'Focus' Mode

POSITION FOCUS

32

Fit:

±3.7 μm

6σ Tolerance:

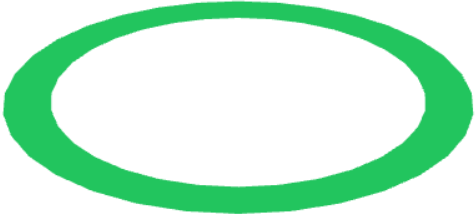
±22.1 μm

SF X: 1.1 μm

SF Y: 7.0 μm

SF Z: 0.5 μm

Ang: 1.9 μm



US

FDI

46

44

42

32

34

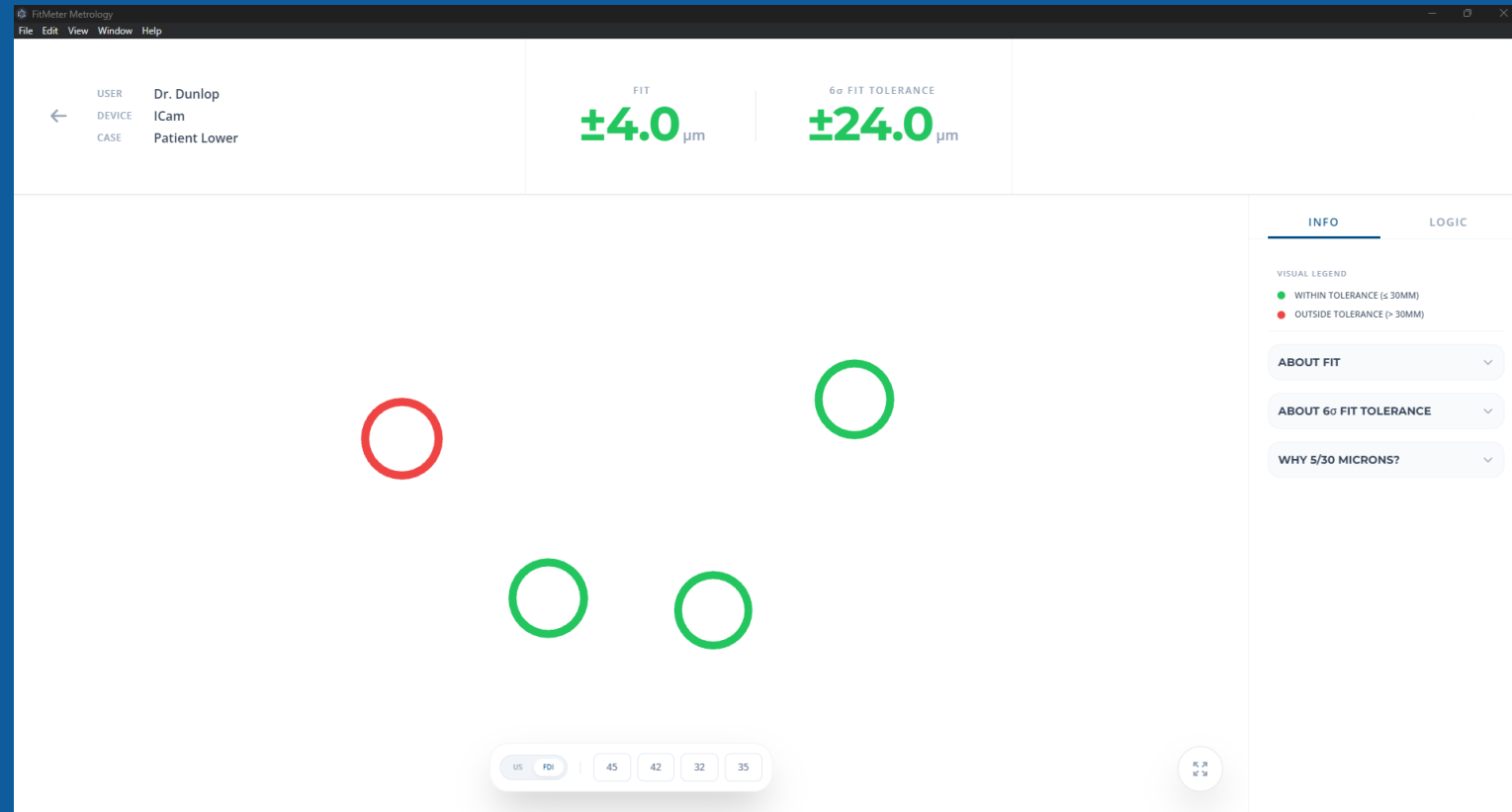
36

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Why Red vs. Green Implant Sites

- **Red** = Implant site 45, comparing DS1 to DS2, results in an RMS greater than 5 microns.
- **Green** = Implant site 42, comparing DS1 to DS2, results in an RMS less than 5 microns.
- When analyzing the overall fit with all implant sites using the RMS calculation, the fit falls below 5 microns. In this example, it's **4.0** microns.



←

USER

DEVICE

CASE

Dr. Dunlop

MicronMapper

Model

FIT

±36.4 μm

6σ FIT TOLERANCE

±218.4 μm



US

FDI

46

44

42

32

34

36



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT



ABOUT 6σ FIT TOLERANCE



WHY 5/30 MICRONS?



30 Micron Difference



- In this example from the MicronMapper Model Data, position 42 has a spatial misfit in Z of approximately 36 microns.
- The image on the right shows an example of the gap if DS1 was the location of the MUA and if DS2 was used to create the restoration.

←

USER

DEVICE

CASE

Dr. Dunlop

PIC

Patient Lower

FIT

±10.5 μm

6σ FIT TOLERANCE

±63.0 μm



US

FDI

45

42

32

35



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE ($\leq 30\text{MM}$)
- OUTSIDE TOLERANCE ($> 30\text{MM}$)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

Tupel

Patient Lower

FIT

±33.0 μm

6σ FIT TOLERANCE

±198.0 μm



US

FDI

45

42

32

35



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE ($\leq 30\text{MM}$)
- OUTSIDE TOLERANCE ($> 30\text{MM}$)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

Shining Elite

Patient Lower

FIT

±15.3 μm

6σ FIT TOLERANCE

±91.8 μm



US

FDI

45

42

32

35



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

MicronMapper

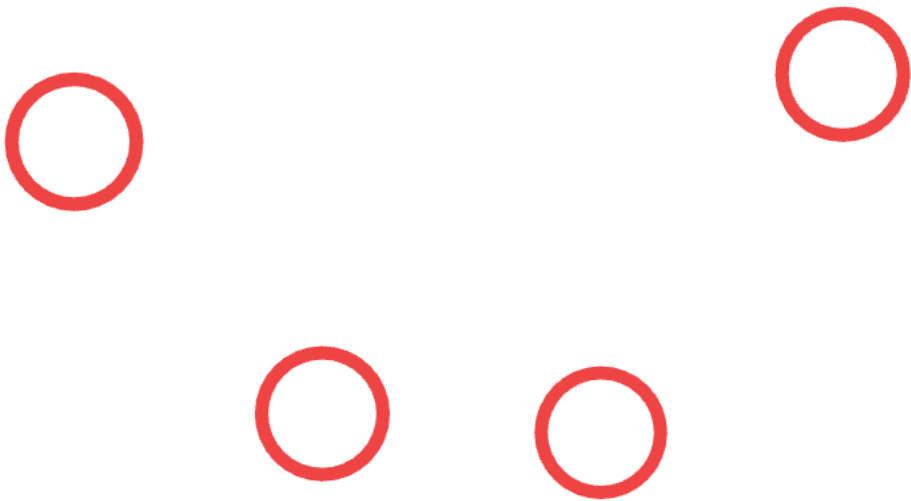
Patient Lower

FIT

±58.0 μm

6σ FIT TOLERANCE

±348.0 μm



US

FDI

45

42

32

35



INFOLOGIC

VISUAL LEGEND

● WITHIN TOLERANCE (≤ 30MM)

● OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

In Vivo: 5 Implant Maxilla



←

USER

DEVICE

CASE

Dr. Dunlop

ICam

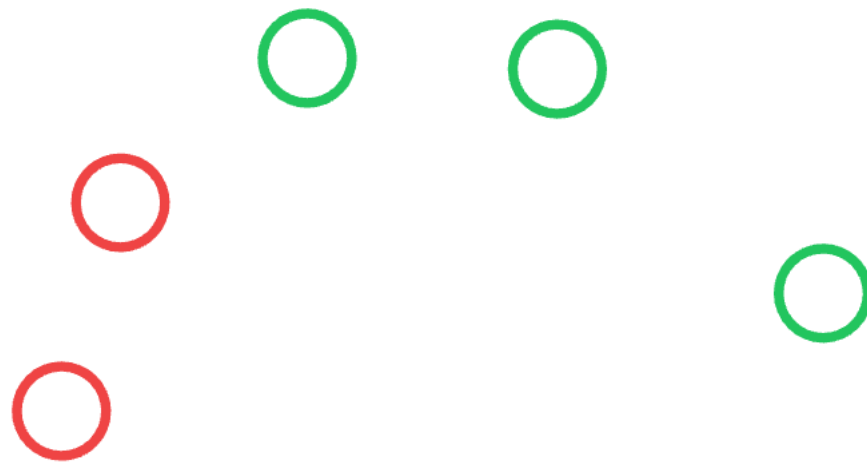
Patient Upper

FIT

±7.8 μm

6σ FIT TOLERANCE

±46.8 μm



US

FDI

15

11

21

24

26



INFO

LOGIC

VISUAL LEGEND

●

 WITHIN TOLERANCE (≤ 30MM)

●

 OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼

←

USER

DEVICE

CASE

Dr. Dunlop

PIC

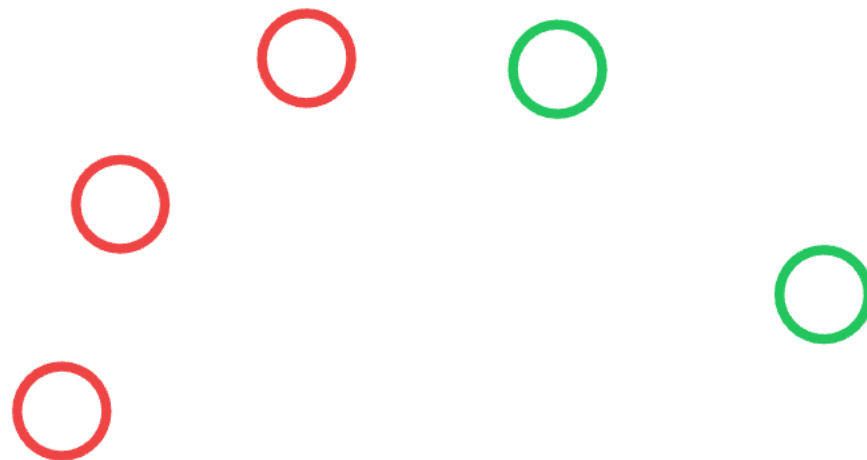
Patient Upper

FIT

±6.1 μm

6σ FIT TOLERANCE

±36.6 μm



US

FDI

15

11

21

24

26



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

Tupel

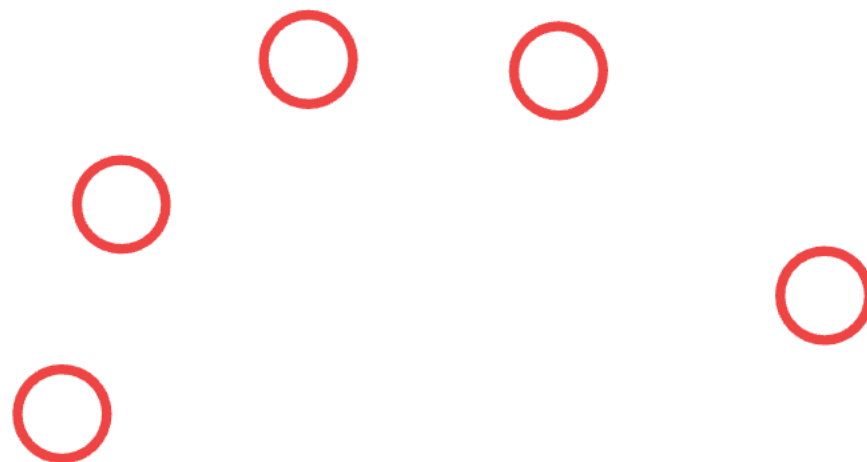
Patient Upper

FIT

±23.1 μm

6σ FIT TOLERANCE

±138.6 μm



US

FDI

15

11

21

24

26



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

Shining Elite

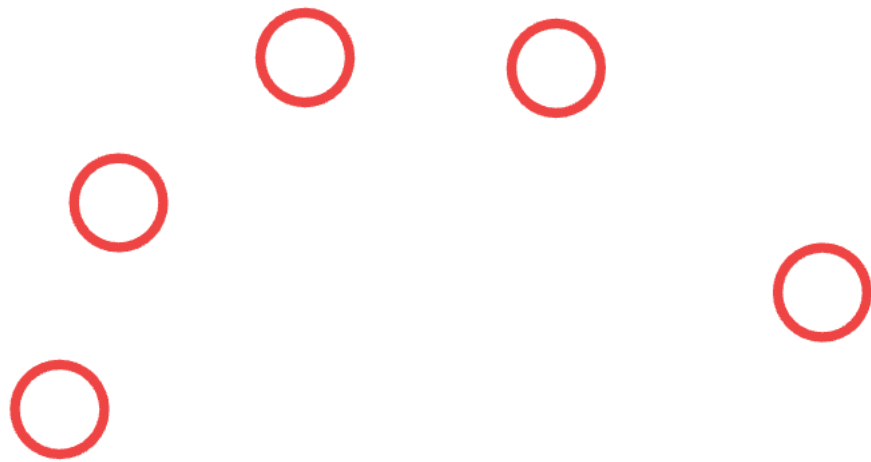
Patient Upper

FIT

±18.5 μm

6σ FIT TOLERANCE

±111.0 μm



US

FDI

15

11

21

24

26



INFO

LOGIC

VISUAL LEGEND

●

 WITHIN TOLERANCE (≤ 30MM)

●

 OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼

←

USER

DEVICE

CASE

Dr. Dunlop

MicronMapper

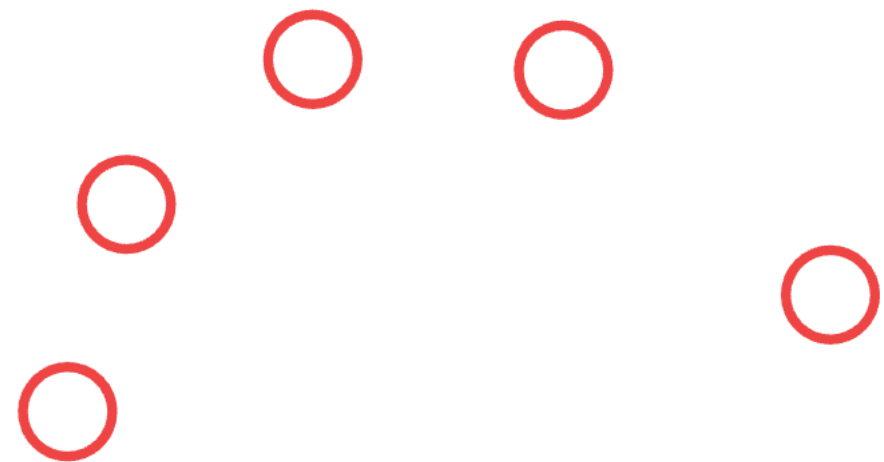
Patient Upper

FIT

±21.7 μm

6σ FIT TOLERANCE

±130.2 μm



US

FDI

15

11

21

24

26



INFO

LOGIC

VISUAL LEGEND

●

 WITHIN TOLERANCE (≤ 30MM)

●

 OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

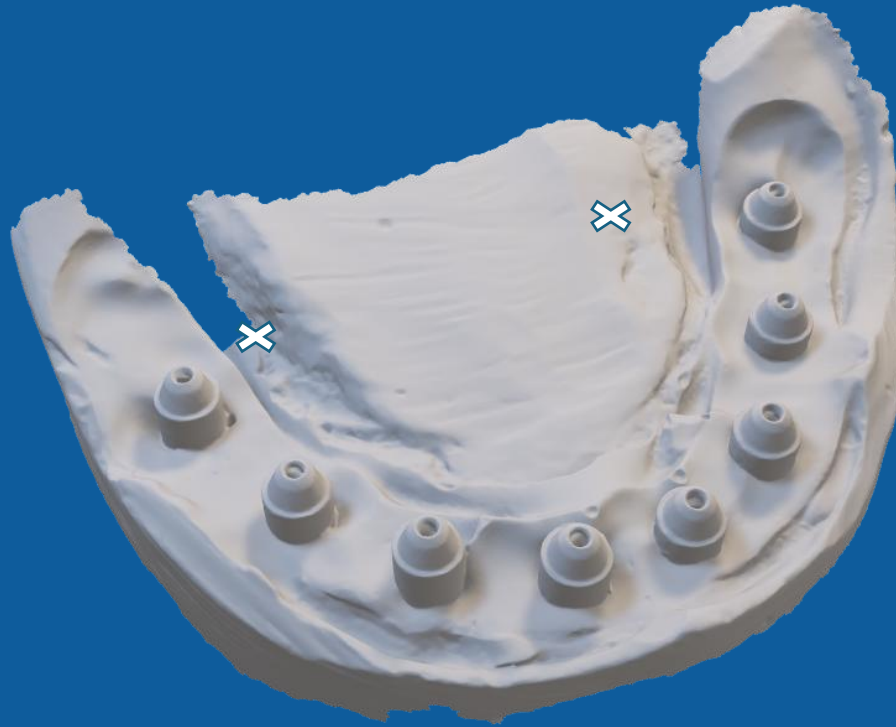
ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼

In Vitro: 6 Implant Model



←

USER

Dr. Dunlop

DEVICE

ICam

CASE

Model

FIT

±3.3 μm

6σ FIT TOLERANCE

±19.8 μm



US

FDI

46

44

42

32

34

36



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼

←

USER

Dr. Dunlop

DEVICE

PIC

CASE

Model

FIT

±28.3 μm

6σ FIT TOLERANCE

±169.8 μm



US

FDI

46

44

42

32

34

36



INFO

LOGIC

VISUAL LEGEND

- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼

←

USER

DEVICE

CASE

Dr. Dunlop

Tupel

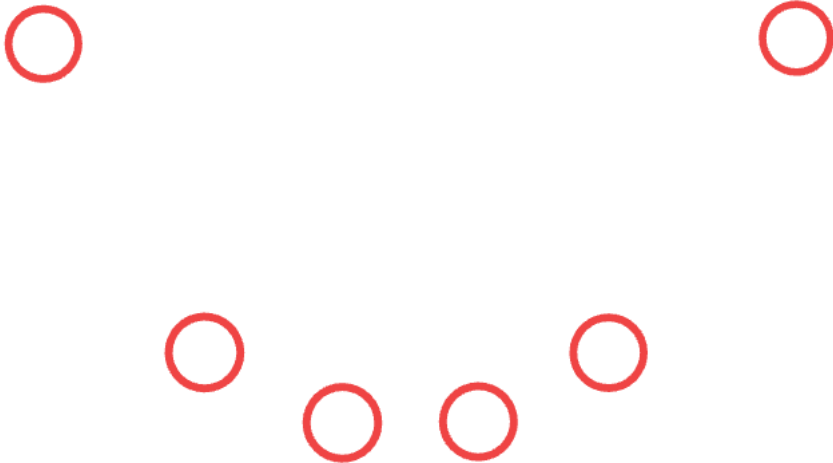
Model

FIT

±25.0 μm

6σ FIT TOLERANCE

±150.0 μm



US

FDI

46

44

42

32

34

36



INFO

LOGIC

VISUAL LEGEND

● WITHIN TOLERANCE (≤ 30MM)

● OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

ABOUT 6σ FIT TOLERANCE

WHY 5/30 MICRONS?

←

USER

DEVICE

CASE

Dr. Dunlop

Shining Elite

Model

FIT

±12.3 μm

6σ FIT TOLERANCE

±73.8 μm



US

FDI

46

44

42

32

34

36



INFO

LOGIC

- VISUAL LEGEND
- WITHIN TOLERANCE (≤ 30MM)
- OUTSIDE TOLERANCE (> 30MM)

ABOUT FIT

▼

ABOUT 6σ FIT TOLERANCE

▼

WHY 5/30 MICRONS?

▼