

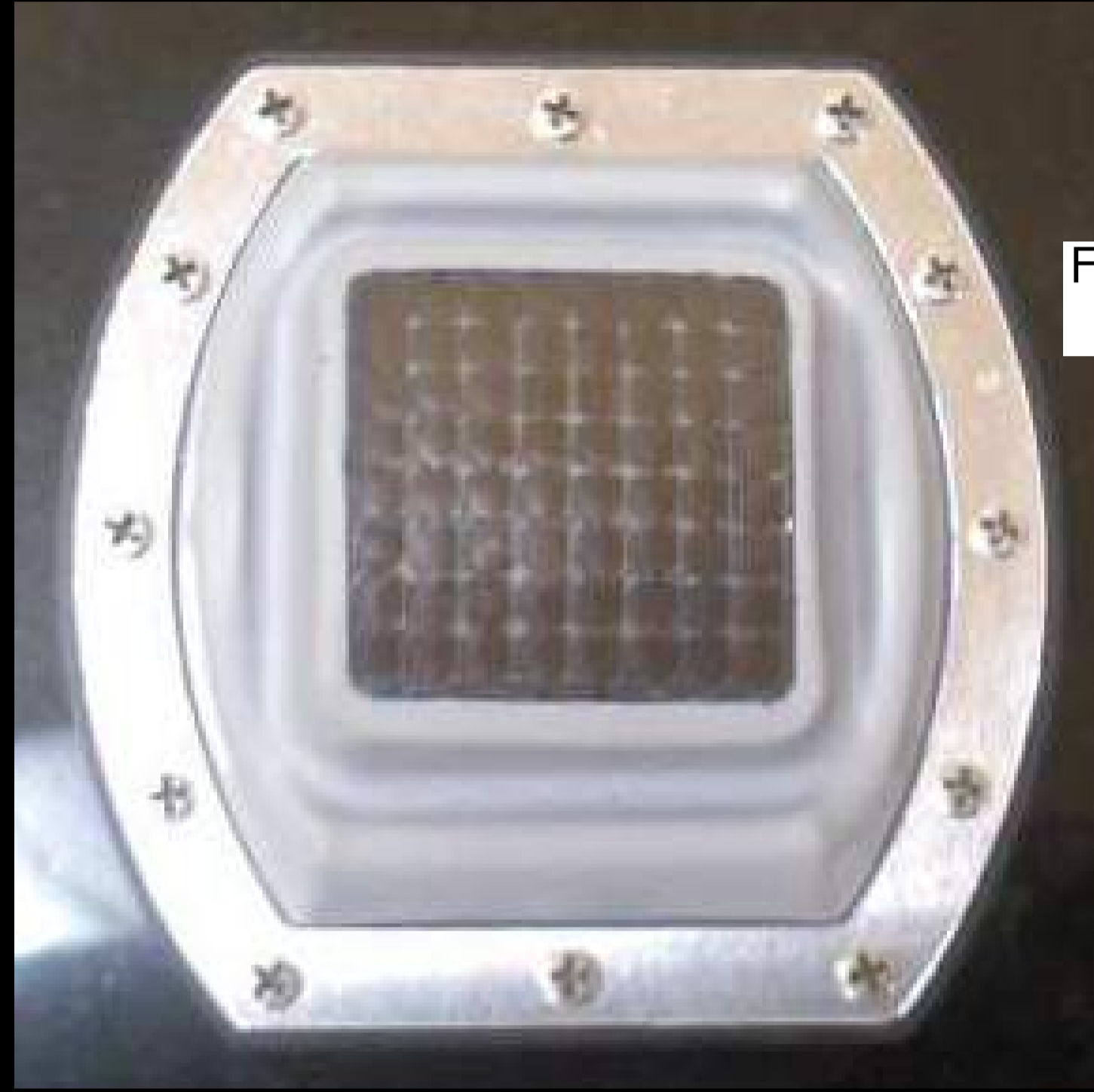
A Flexible Ultrasonic Probe for Measuring from Curved Surface

曲面から探傷を行う柔軟性超音波探触子

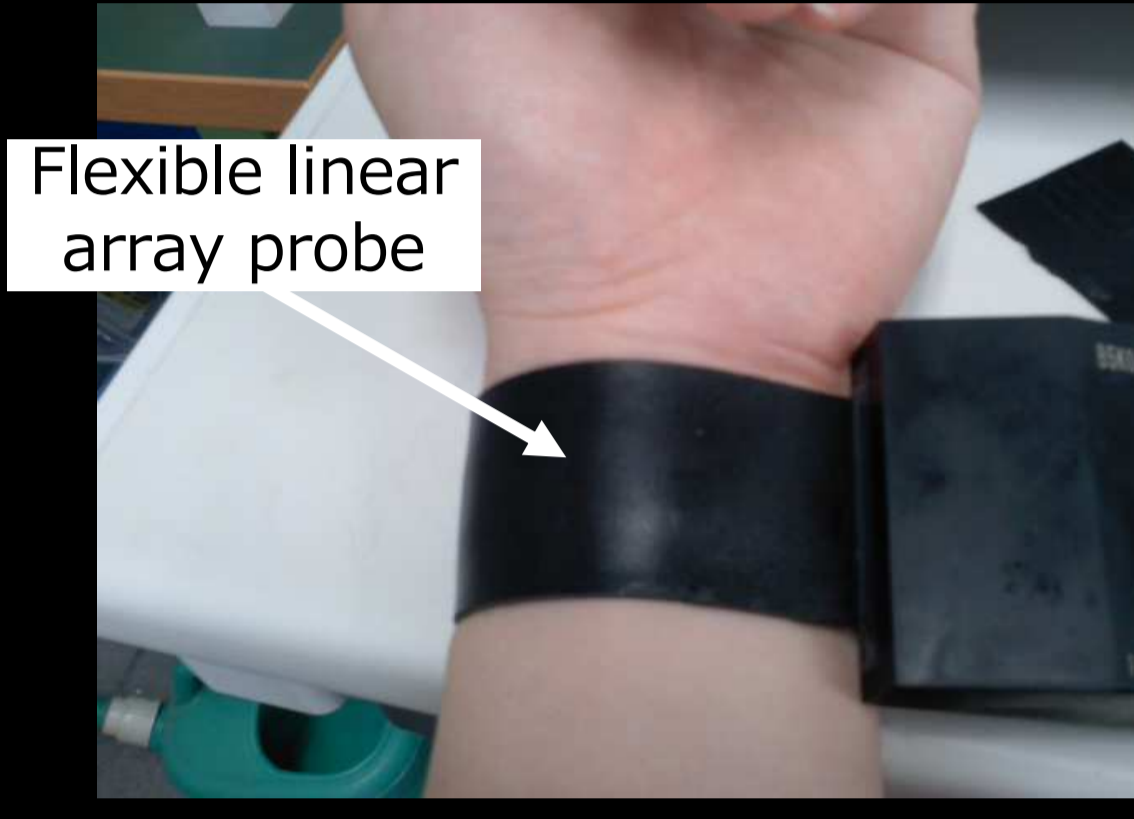
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Abstract A flexible ultrasonic probe was developed and ultrasonic measuring from the curved surface. Three types of flexible ultrasonic probe, monocular, linear array, matrix array are developed, and those were evaluated with curved specimens. B mode images and C mode images were acquired, and the depth and shape of the artificial thinning on the curved surface could be imaged, respectively. In addition, the axial resolution and the lateral resolution were measured with a specimen set with a stepped wall thickness and a specimen close to the specimen, and each resolution were 1 mm.

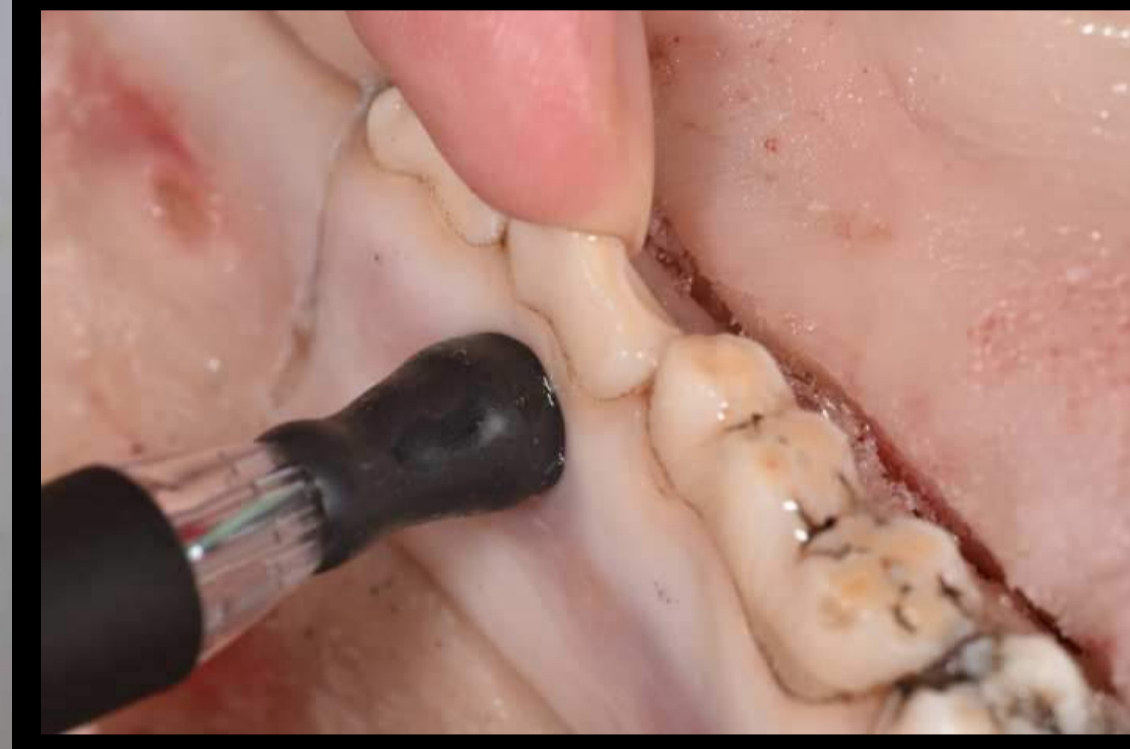
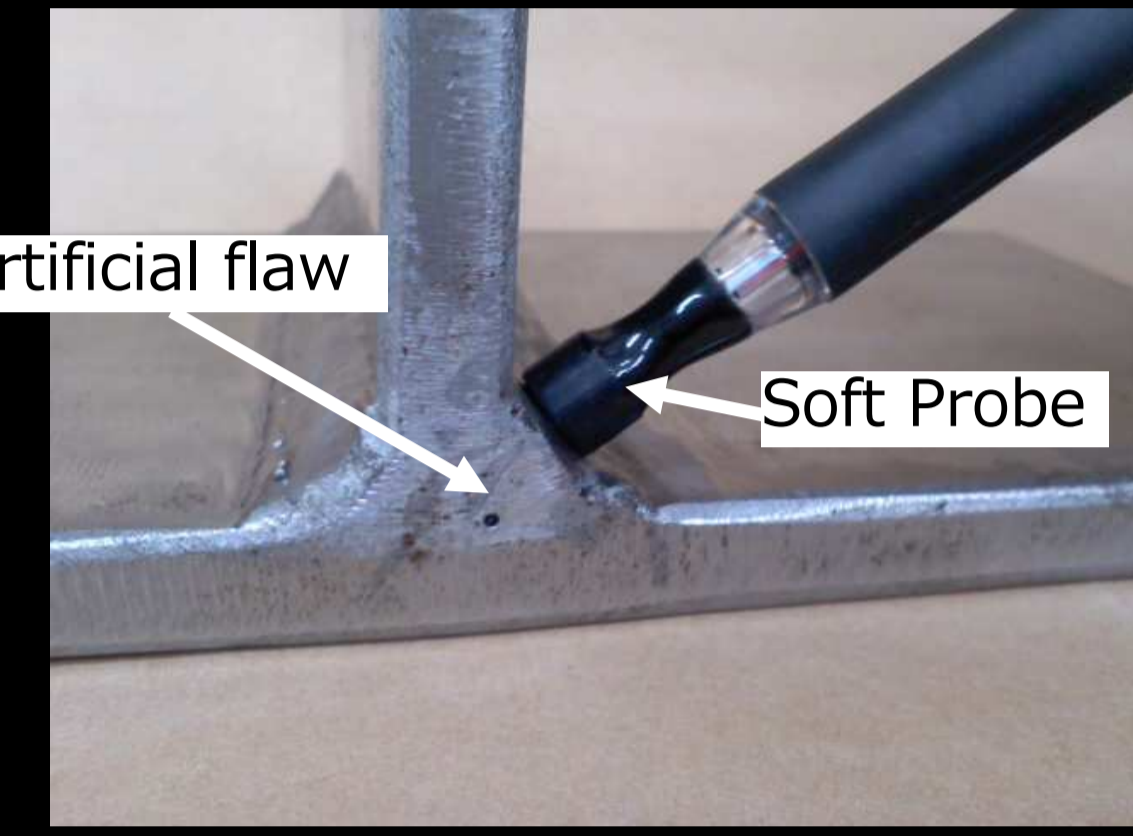
Three types of flexible array probe



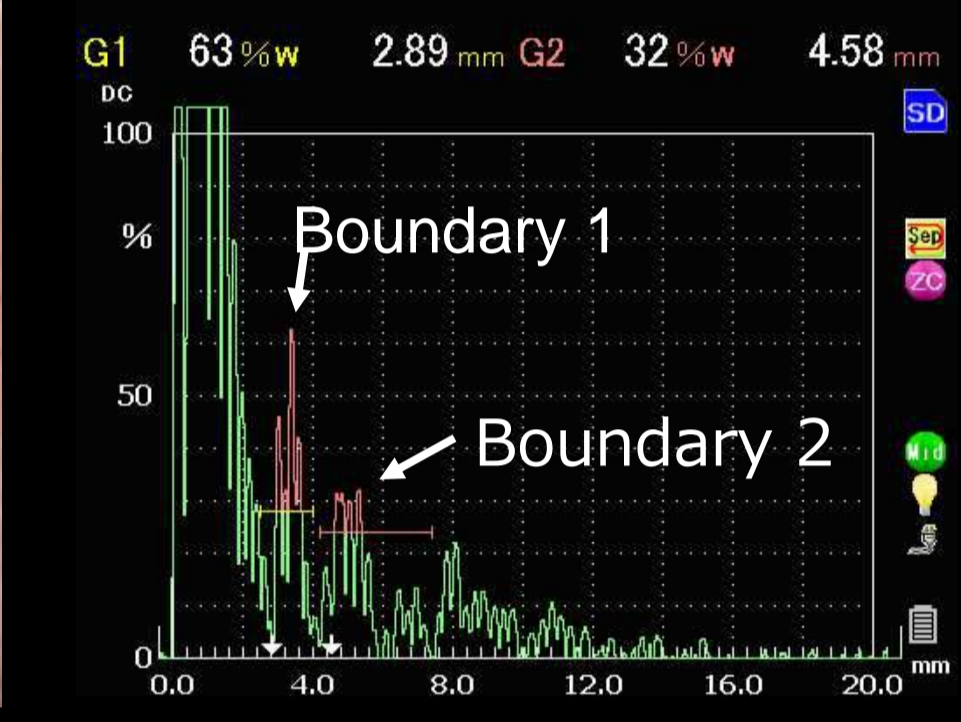
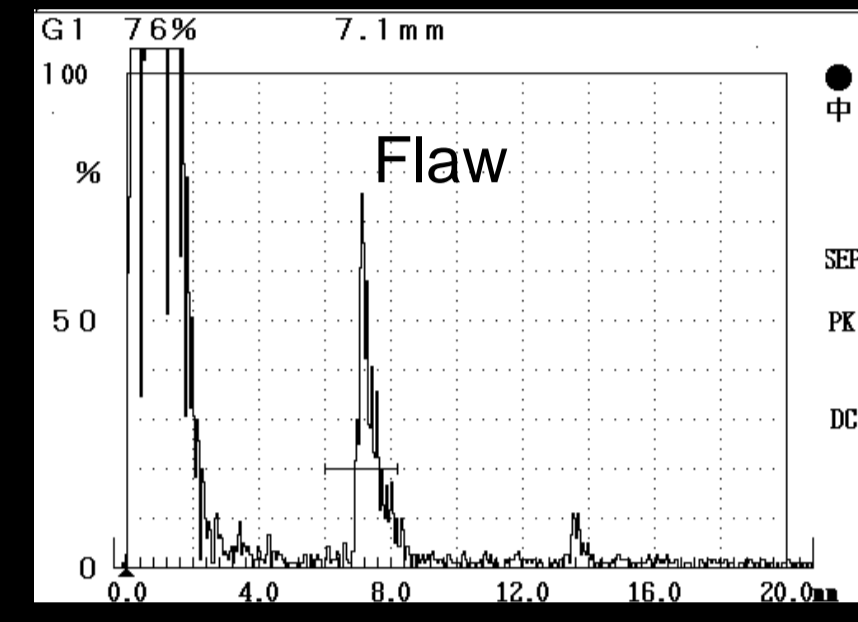
Flexible matrix array probe
 8x8 64ch 2.5 mm pitch



Flexible linear array probe



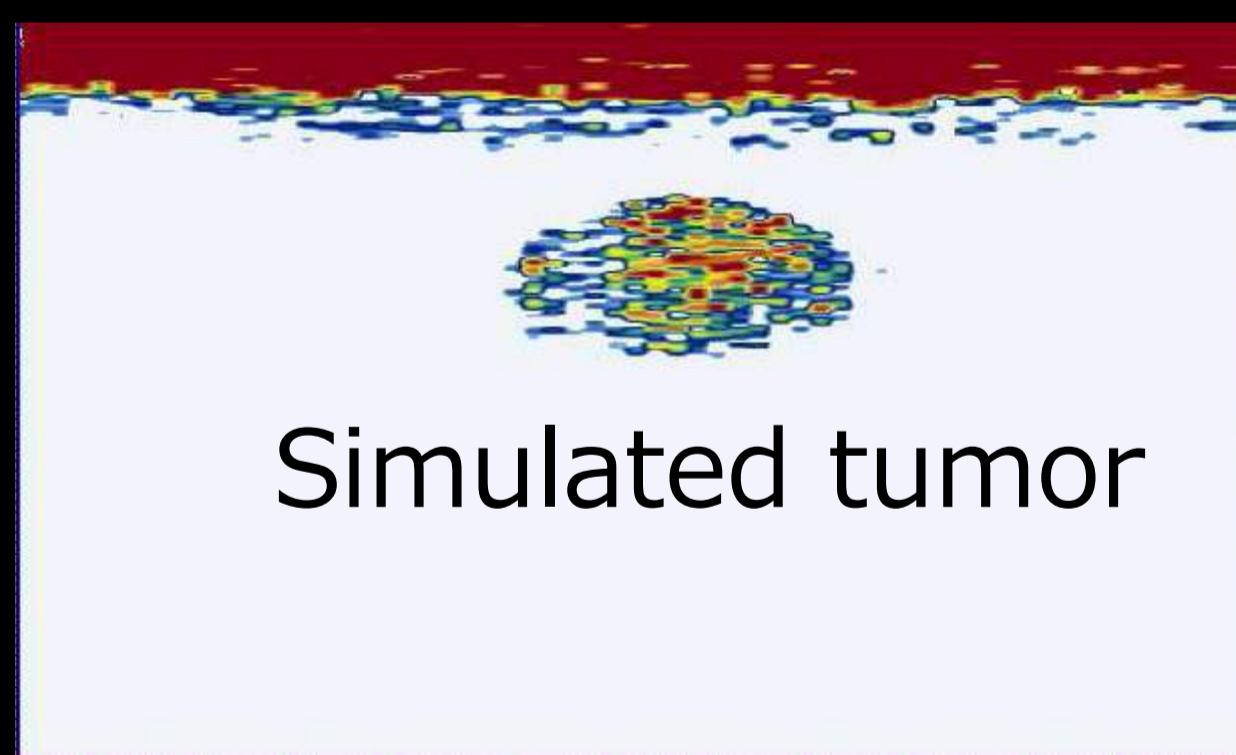
Measuring pigs gingiva using soft probe



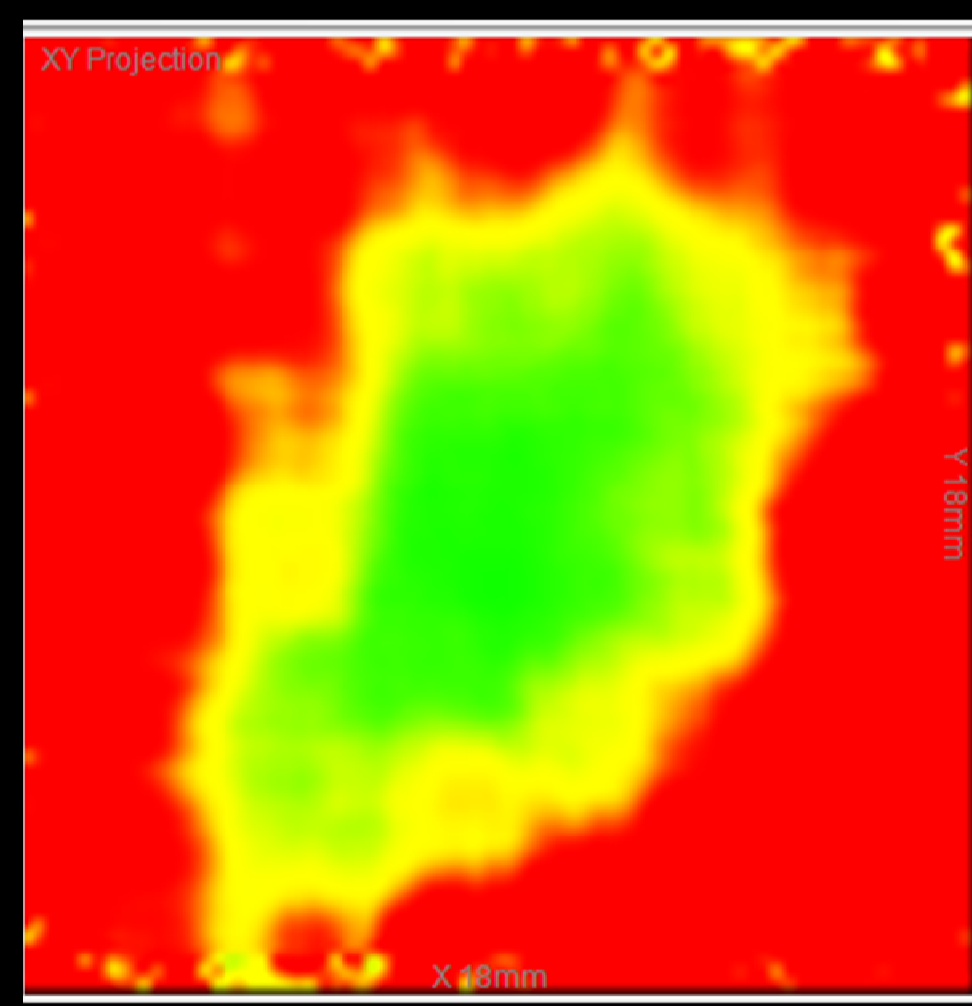
B1: Gingiva and cortical bone
 B2: Cortical and cancellous bone

Soft Probe

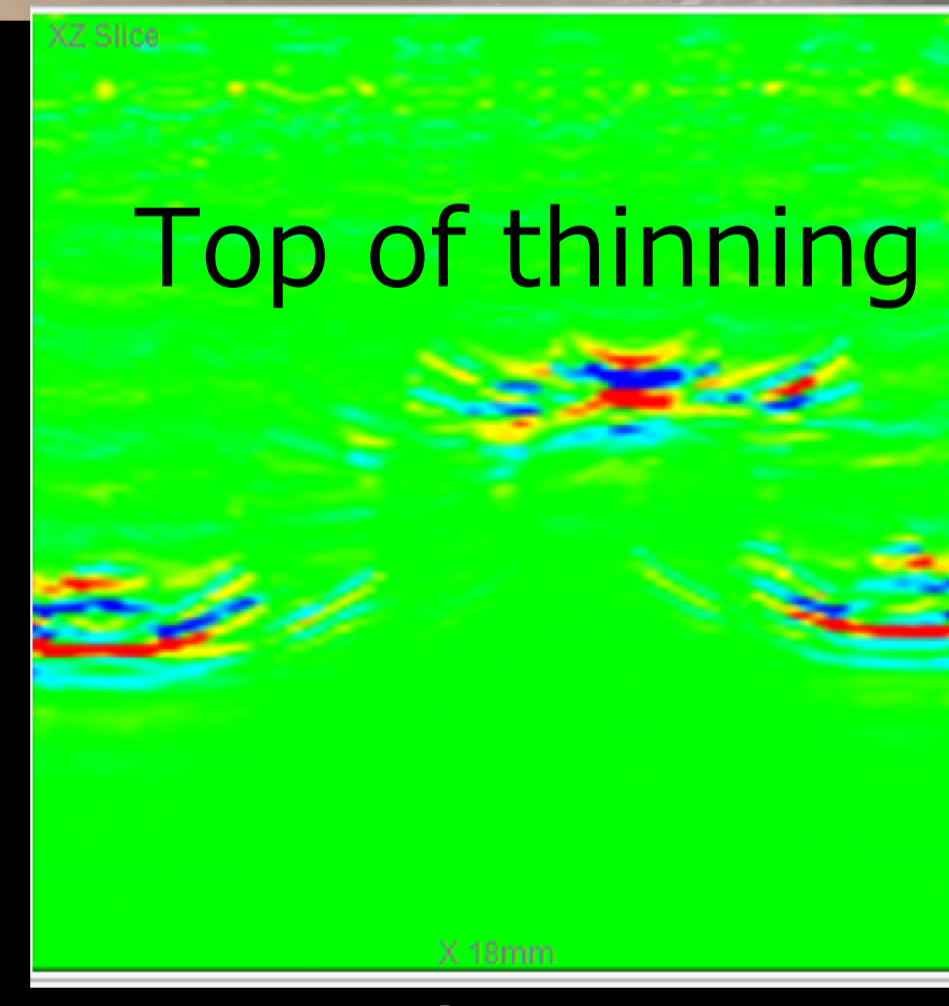
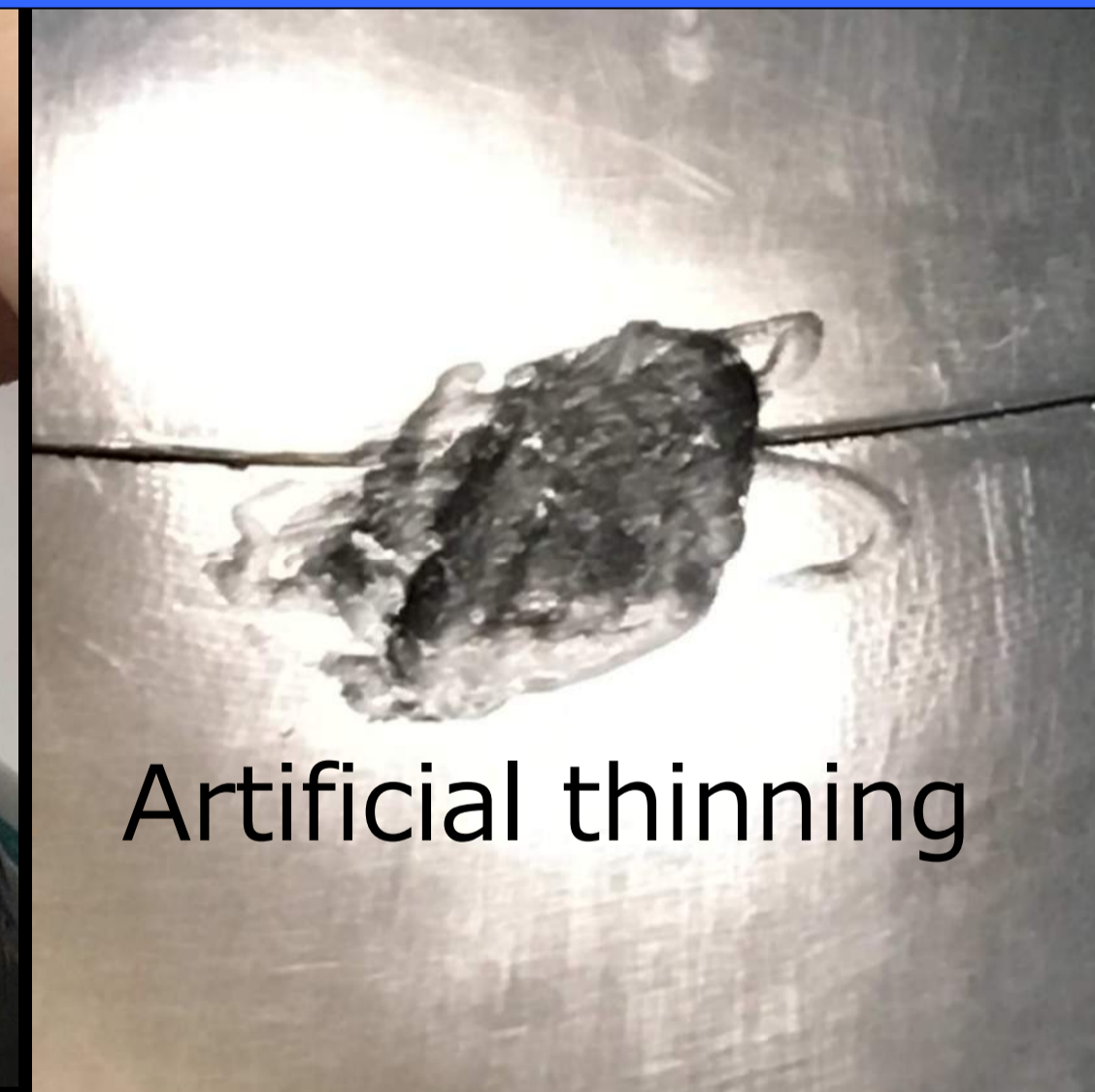
Visualising using array probe



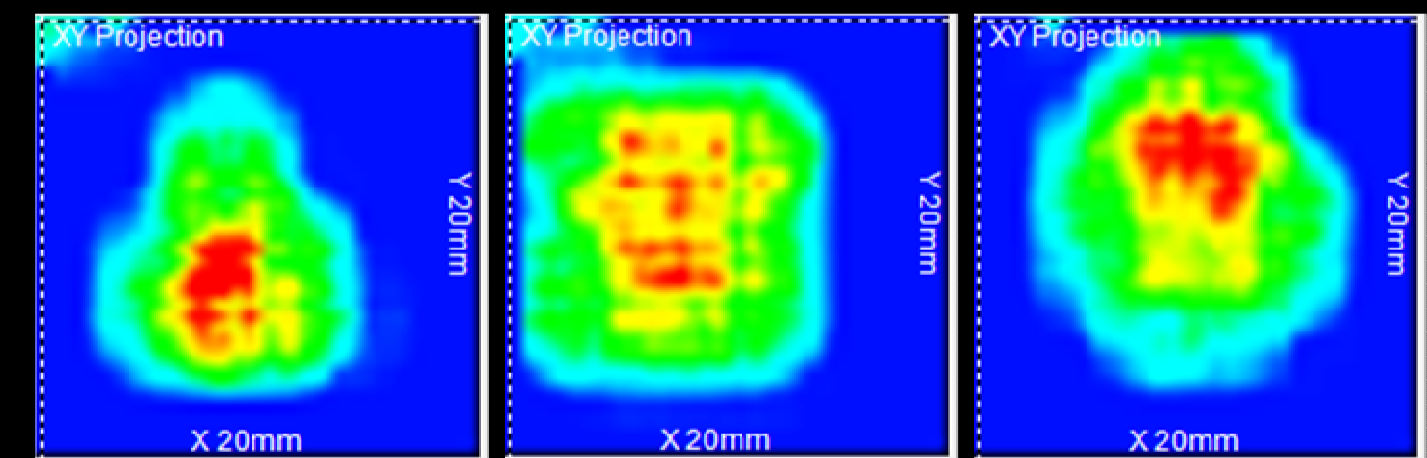
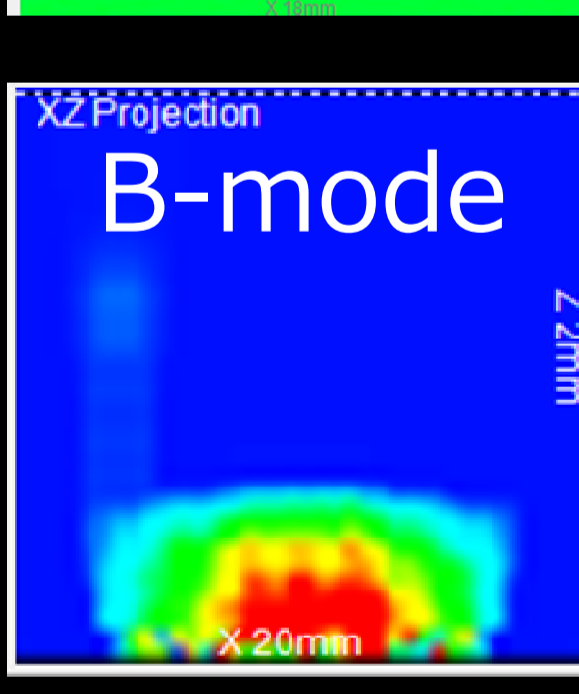
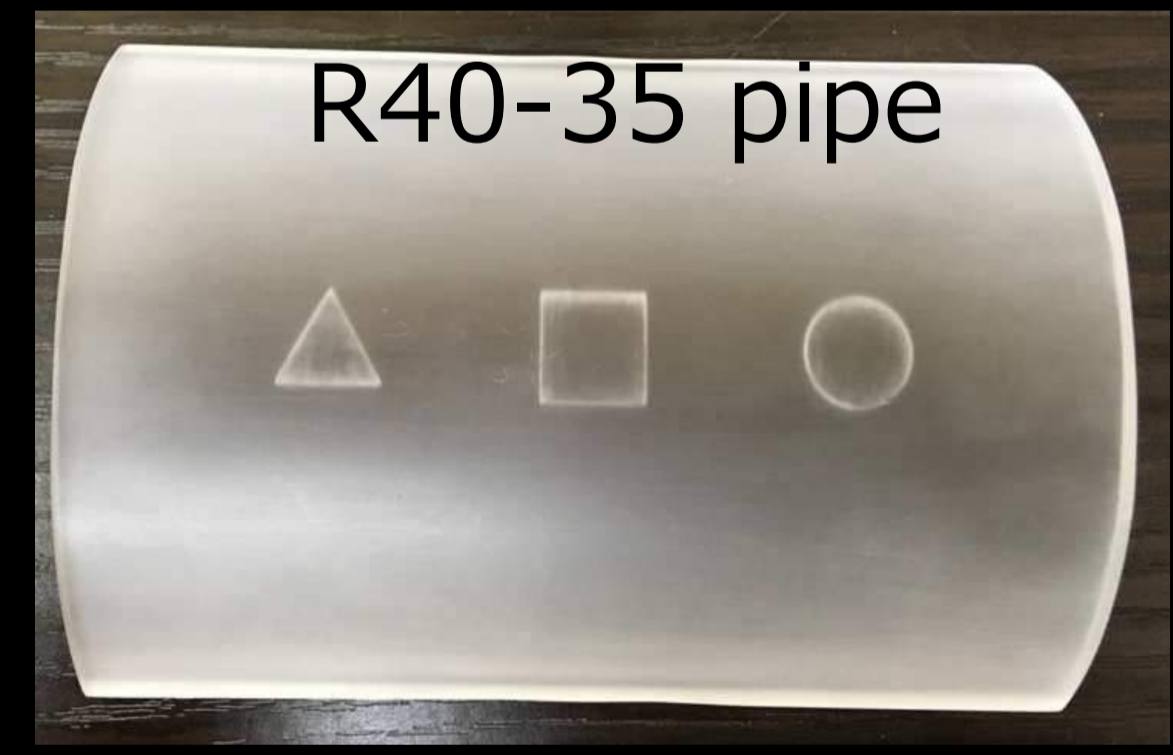
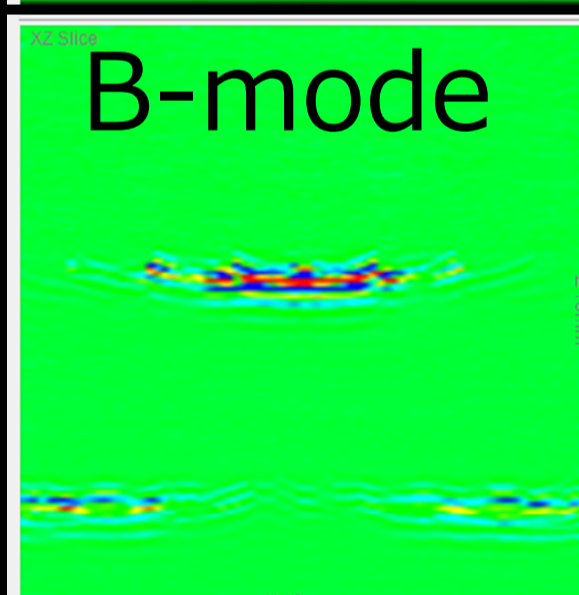
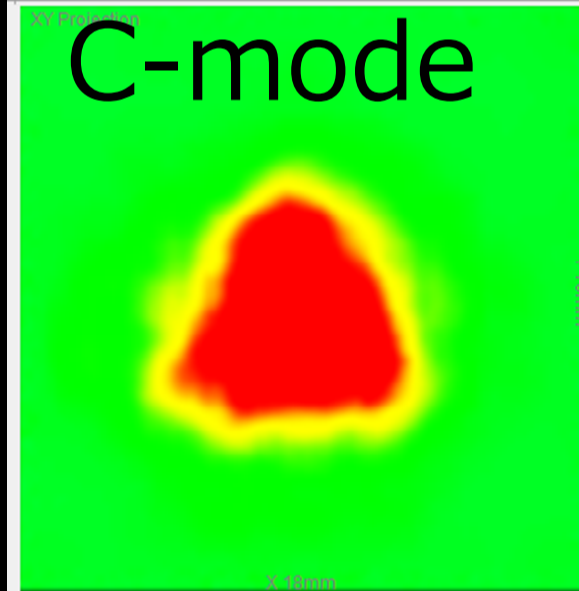
Flexible Linear array probe and B-mode image



C-mode image



B-mode image



C-mode

Axial resolution



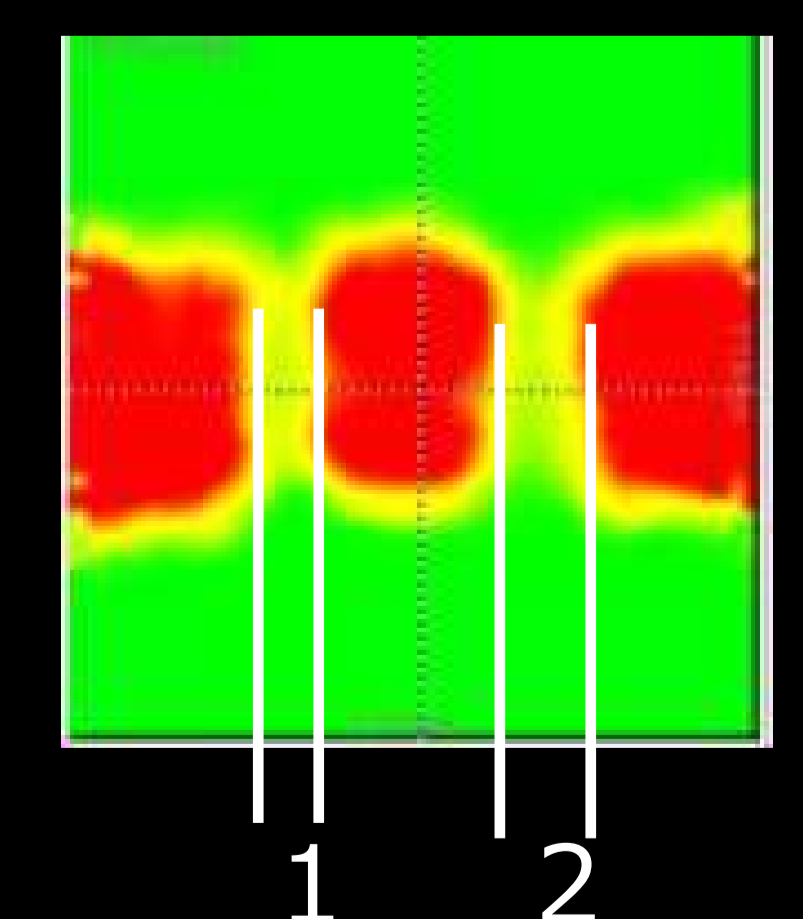
C-mode image of 1 mm step

Measuring resolution



□5mm and □4 mm depth thinning
 1-10 mm between each thinning

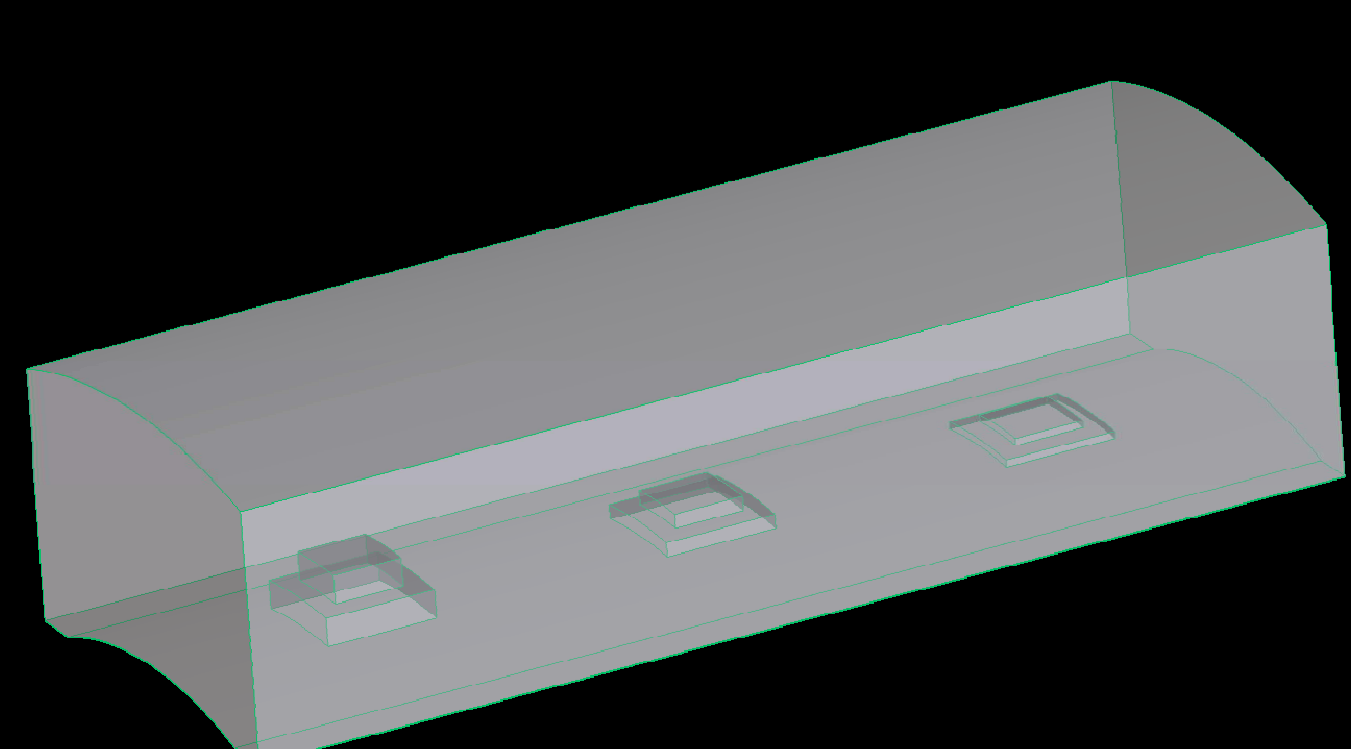
Lateral resolution



1 2



□8 mm and □5 mm step thinning



Step of depths: 0.5, 1, 2 mm

Flexible matrix array probe has performance that axial and lateral resolution are 1 mm

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