



Advancing the Art of Breast Ultrasound Imaging



For the First Time Ever . . . An Innovation that Gives You Truly Quantifiable Tissue Elasticity

...Explore the Latest Technology in Ultrasound

Aixplorer®
is a MultiWave™
ultrasound system
with a unique breast
imaging application.
The revolutionary
system delivers:



**Impeccable
Image Quality**

**Real-Time
ShearWave™
Elastography**

**Cutting Edge
Ergonomic
Design**

The Advent of Aixplorer®

Aixplorer is a next-generation ultrasound system from SuperSonic Imagine introducing impeccable image quality and a new concept of imaging. ShearWave™ Elastography gives you truly quantifiable elasticity and reproducible results, all in real-time.

Impeccable image quality: quality you can count on

The Aixplorer system harnesses proprietary SonicSoftware™, an all software based architecture that is extremely rapid and flexible, providing you with impeccable image quality. Technological advances SuperCompound™ and SuperRes™ ensure superb image resolution.

Only Aixplorer is fast enough to achieve ShearWave™ Elastography

With UltraFast™ imaging, Aixplorer acquires data up to 200 times faster than conventional ultrasound technology. Aixplorer produces, in real time, a color coded map which represents tissue elasticity in kilopascals. A color scale indicates the level of tissue elasticity ranging from very soft (blue) to very stiff (red).

Ergonomics

Aixplorer has been developed with your scanning needs in mind. Cutting edge compact design, intuitive control and touch panels, ultra lightweight transducer and cable are just some of the features incorporated to help make your working conditions optimal.

The quantification of tissue elasticity is an important tool as tissue elasticity can be related to pathology



Impeccable Images with Extraordinary Features

The clarity of Aixplorer® images improves lesion characterization and adds to your diagnostic process.

SonicSoftware™ - the flexible software system

Aixplorer uses SonicSoftware, a unique architecture that shifts ultrasound processing from hardware into software, enhancing speed, accuracy and flexibility. SonicSoftware can transfer information at sonic speeds and also enables novel imaging concepts such as Real-Time ShearWave Elastography.

SonicSoftware is the reason Aixplorer has excellent B-Mode image quality, even in simultaneous modes such as Color Flow or ShearWave Elastography.

SuperCompound™ - designed for clarity

Never before has spatial compounding been so clear and fast. SuperCompound has up to nine beam-steered angles of insonification that are combined into one single image, all captured in SonicSoftware. This technology provides you with images that have incredible definition and continuity of tissue borders, reduced speckle and amazing contrast resolution.

The clarity
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images improves
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SuperRes™ - improving conspicuity

Aixplorer offers powerful proprietary adaptive image processing reducing speckle and enhancing borders without compromising spatial resolution. Novel to the industry, SuperRes offers four levels of adjustment to improve conspicuity of tissue.

TissueTuner™ - speed of sound corrector

All breasts are different and Aixplorer recognizes this, offering you five settings of tissue density to adjust the system's parameters to accurately match the speed of sound in the tissue being scanned. TissueTuner increases lateral and contrast resolution, resulting in sharper borders and a better delineation of normal and abnormal structures.

Tissue Harmonic Imaging

Our broadband technology delivers extremely high resolution Tissue Harmonic Imaging which significantly reduces image artifacts and provides better contrast resolution. This technology can increase your diagnostic confidence.

Auto TGC

TGC (Time Gain Compensation) has a new configuration with innovative set up options that are user friendly. You can change the Gain and TGC together, or you can adjust the TGC alone. This flexibility provides a uniform brightness while adjusting the TGC, improving your visualization of any image.

In addition, Aixplorer has a ManualTouch TGC control on the touch screen. This easy-to-use feature places the latest technology at your fingertips.

Color Doppler

As an industry first, SuperCompound is used to ensure the best B-Mode image quality while in Color Flow imaging, allowing the best of all possible images – brought to you simultaneously. Broadband Color Doppler provides sensitive flow imaging in both superficial and deep structures.

**Aixplorer
has both Auto TGC
and ManualTouch™
TGC control, right
on the touch screen,
for quick,
efficient use**

**SonicSoftware is a
flexible software
system that offers
you faster and easier
upgrades**



Explore the New Wave in Ultrasound: ShearWave™ Elastography

Now is the time to step into the future with Real-Time ShearWave™ Elastography that is user-skill independent, has reproducible results and is truly quantifiable.

A revolutionary step forward

In general, palpation is the first step in a clinical breast exam. The purpose of manual palpation (pressing lightly on the surface of the body to feel the organs or tissues underneath) is to assess tissue stiffness to help diagnose disease.

Today, it is vital to obtain additional information on truly quantifiable tissue elasticity as tissue elasticity may have a correlation to pathology.

One user-skill independent step

Aixplorer provides information that can lead to enhanced diagnostic confidence. By simply placing the transducer on the tissue, no compression is necessary, Aixplorer produces a Real-Time ShearWave Elastography local color map of the lesion. ShearWave technology enables an unbiased elastography image where each pixel has a quantifiable local evaluation not dependant on surrounding tissue.

Reproducible Results

As ShearWave Elastography provides a true local evaluation of tissue, you can use it to compare and follow, over time, a lesion with quantifiable parameters.

Capturing shear waves is essential as their speed is directly related to the quantifiable measurement of tissue elasticity

Unmet Needs in Ultrasound

– Truly Quantifiable Real-Time Elastography in Kilopascals

Aixplorer® can, in a non-invasive procedure, generate a shear wave using SonicTouch™, capture a shear wave with Ultrafast™ Imaging and quantify shear wave speed resulting in true tissue elasticity values in kilopascals.

ShearWave™ Elastography Quantification in Real-Time

Aixplorer produces an image called an elastography map, which shows the elasticity or stiffness in tissue by color.

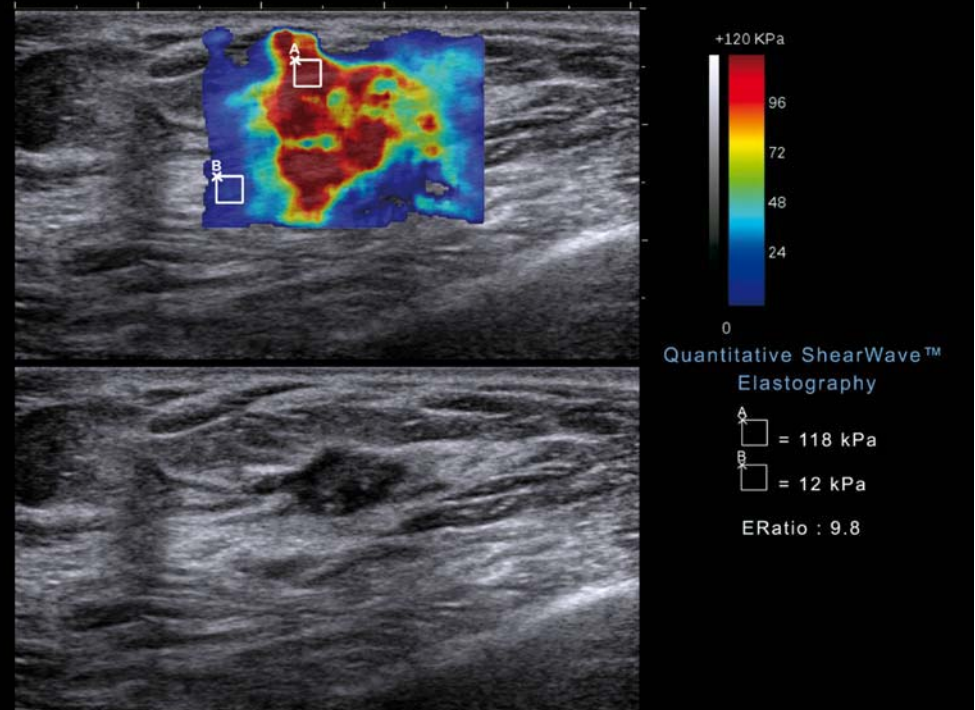
Stiff lesions appear as red with a high kilopascal value, while soft lesions appear as blue with a low kilopascal value. This color coding can be changed to fit your needs.

Aixplorer's
ShearWave
Elastography provides
physicians with
confidence and
assurance in the
diagnostic
process

SUPERSONIC
imagine

Color-coded ShearWave™ Elastography:

- An amazing tool to assist in lesion stiffness characterization
- A quantifiable display using a color coded kilopascal scale
- Q-Box™ allows elasticity measurements and comparisons for specific regions of interest
- User-skill independent with no manual compression required for imaging
- Reproducible Results
- No motion artifacts
- A color coded two dimensional map that is displayed either side by side with the B-mode image or top/bottom depending on the preference of the user



Aixplorer® ShearWave™ Elastography (SWE Mode)

Bringing Science to Your Screen

SonicTouch™

SonicTouch™ is a safe, patented technology that enables the creation of shear waves in the body.

With Aixplorer's SuperLinear 15-4 transducer a shear wave is generated within tissue by sending focused ultrasound waves. Pulses are successively focused at different depths in tissue at a supersonic speed.

The resulting waves are naturally enhanced by forming a Mach Cone increasing shear wave propagation efficiency. SonicTouch enables real time ShearWave Elastography without any overheating of the transducer surface, a cool down phase is not required.

Pulses are successively focused at different depths in tissue at a supersonic speed

MACH CONE

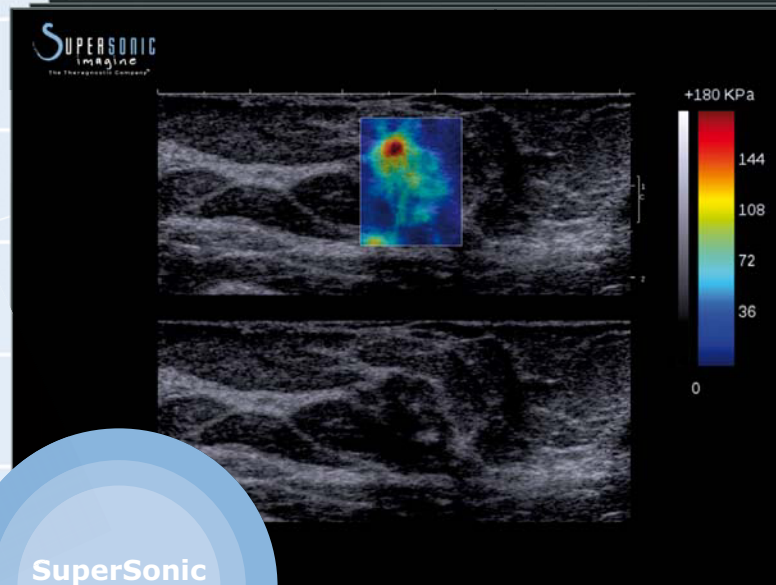
Ultrafast™ Imaging - Capturing at Amazing Speeds!

Ultrafast™ Imaging is a revolutionary technology that captures the shear wave propagation in tissue.

To capture a shear wave, acquisition rates must be at least 5,000 Hz. Aixplorer functions at speeds of up to 20,000 Hz.

Ultrafast Imaging speeds are created by transferring beam formation and scan conversion to software and introducing parallel processing. One complete B-mode image can be generated from one flat insonification at an acquisition rate of up to 20,000 images per second.

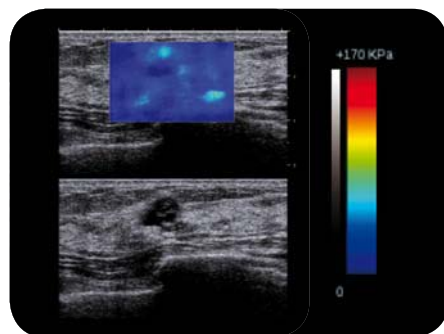
Conventional
Ultrasound



SuperSonic
Imagine

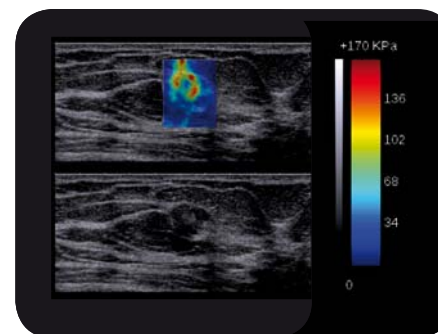
SuperSonic Imagine

**200x
more**
images/second



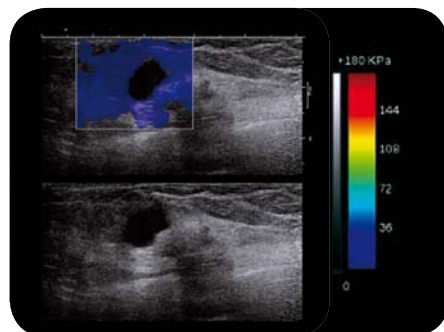
Benign Breast Lesion

This benign lesion shows a blue color on the ShearWave Elastography map and a soft tissue quantitative value in kPa.



Malignant Breast Lesion with Hard Shell

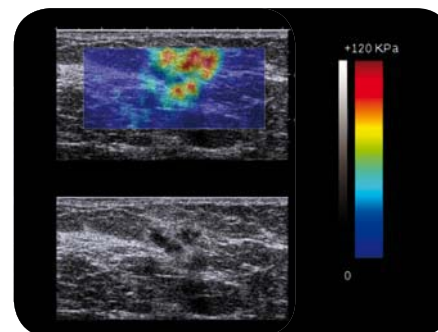
This malignant lesion contains stiff outer tissue illustrated in red on the elastography map with a kPa value of more than 170. There is also softer tissue inside the lesion shown on the elastography map as blue.



Breast Cyst

BI-RADS® 2

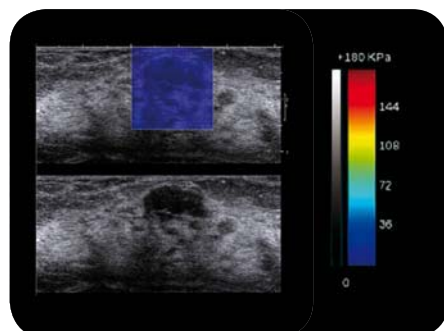
Shear waves do not propagate in liquid. This cyst appears on the elastography map without an elastography signal and without a quantitative value in kPa.



Breast Hematoma and Invasive Ductal Carcinoma

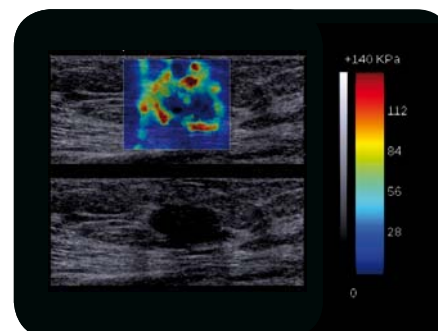
BI-RADS® 5

This hematoma is shown on the ShearWave Elastography color map as a blue soft region with a low kPa value. There is also a malignant lesion in red with a 115 kPa value.



Breast Fibroadenoma

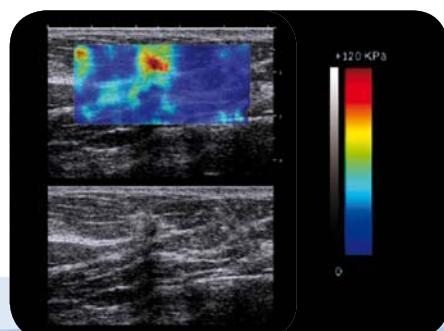
ShearWave Elastography illustrates a blue color on the elastography map with a quantitative value of less than 30 kPa.



Ductal Carcinoma In Situ

BI-RADS® 5

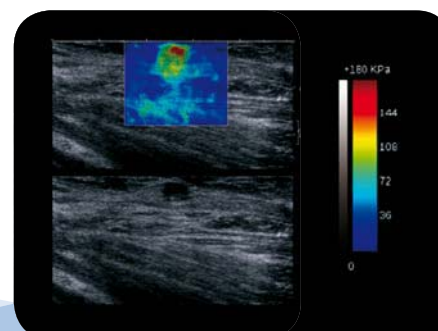
This malignant breast lesion is shown in red on the ShearWave Elastography map.



Malignant Breast Lesion

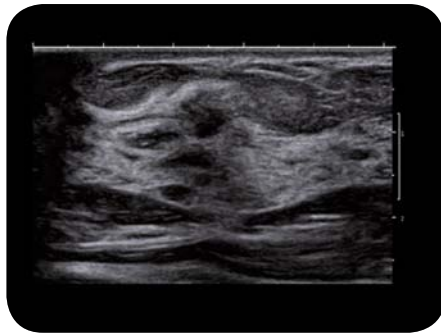
BI-RADS® 4

This hard malignant lesion is displayed by ShearWave Elastography as red in color with a quantitative value of over 120 kPa.

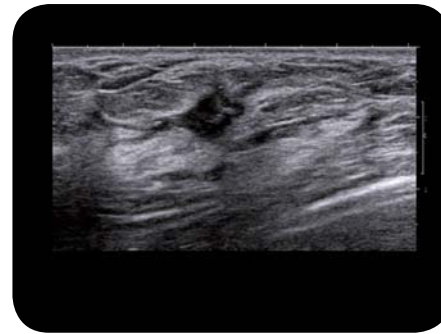


Metastatic Lymph Node with Adenocarcinoma Cells

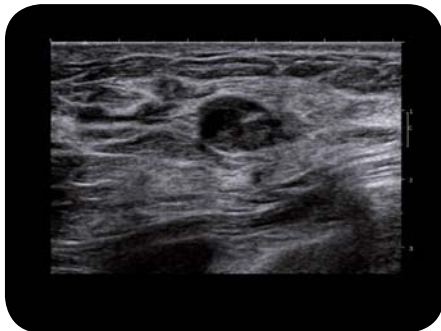
This malignant lymph node is illustrated on the ShearWave Elastography map in red with a quantitative value of greater than 140 kPa.



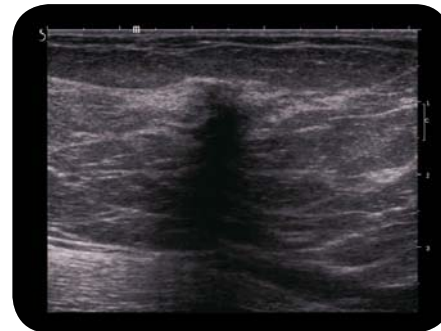
Breast with Micro-cysts
and Benign Mass
Using SuperCompound and SuperRes



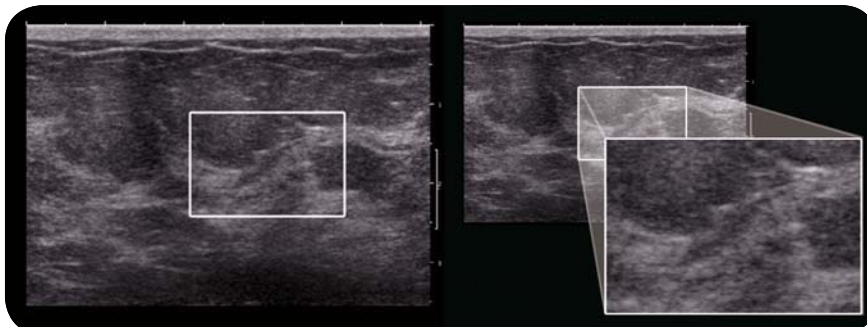
Breast Ductal Carcinoma
Using SuperCompound and SuperRes



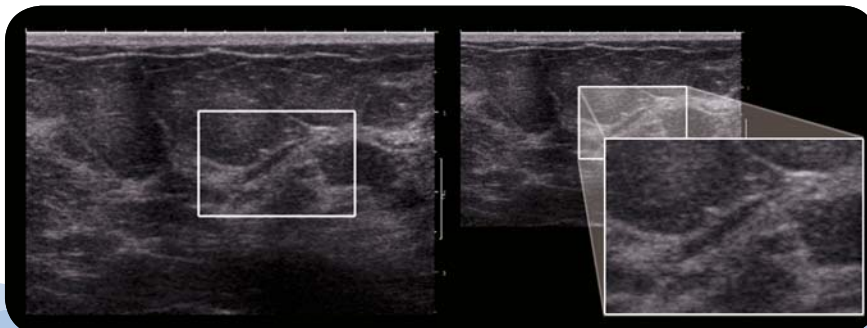
Breast Fibroadenoma
Using SuperCompound and SuperRes



Breast Carcinoma
Using SuperCompound



Breast Image with No Speed
of Sound Correction



Breast Image with TissueTuner
Speed of Sound Correction set for
Fatty Tissue Imaging



Sophisticated Features for Intuitive Use

Unique ten inch interactive touch screen to make your job easier

Patient data entry, application and preset selections can all be done quickly on the touch panel. The touch panel can also display a magnified area of interest found on the main monitor to perform measurements and outlining of lesions. Body markers and the transducer orientation marker can also be moved with the touch of a finger. The novel ManualTouch TGC feature is also available on the touch panel.

Included in the Breast Package

BI-RADS®: The Breast Imaging Reporting And Data System developed by the American College of Radiology (ACR) is a quality assurance tool designed to standardize ultrasound reporting, reduce confusion in breast imaging interpretations, and facilitate outcome monitoring.

Under licensed agreement with the ACR, Aixplorer has integrated the BI-RADS® reporting tool in order to improve the reporting workflow. Simply fill in the BI-RADS® assessment on the monitor during scanning and print it with your final reports.

Transducer:

The Super Linear 15-4 transducer is designed to help you acquire the most accurate data possible for every exam. The lightweight transducer has been ergonomically studied and validated by physicians to fit perfectly in your hand in a relaxed position.

- This unique transducer technology provides both outstanding B-Mode quality and ShearWave Elastography performance
- This 50mm linear array transducer for breast, thyroid and small parts is equipped with an extended frequency range from 4 to 15 Mhz

Lightweight system that lets you get closer to your patients and is easily maneuverable



Standard features

- Flat 20 inch LCD Monitor
- B-Mode Imaging
- Pulse Wave Doppler
- Color Doppler
- Power Doppler
- SuperCompound™
- SuperRes™
- TissueTuner™
- Tissue Harmonic Imaging
- Auto TGC/ManualTouch™ TGC
- Dual Image Display
- Trapezoid Imaging in B-Mode
- HD Zoom
- Real-Time ShearWave™ Elastography Mode
- Qbox™ Quantification
- Lesion Measurement Tool Box
- BI-RADS® Breast Package
- CineReview
- Image Management capabilities: thumbnail image review, patient reporting
- Cable Management

Connectivity

- Export/Import managed by CD/DVD or USB mass storage
- USB external port
- SAMBA communication protocol
- DICOM

SonicResearch™ Package

Open per channel RF data access


The Ergonomic Edge

Ergonomic equipment is important in the scanning environment; Aixplorer® has the design features essential in reducing the chance of any work related injury.

- Full range and independent height-adjustable control panel and monitor that can be tilted and moved into the proper position to accommodate scanning whether seated or standing
- Easy access to the system and its controls from every angle
- Intuitive control panel with integrated palm rest
- Macro Controls: include Image Quality Optimization and Lesion Characterization Optimization
- Innovative TouchRing for direct access to key ultrasound controls
- Light-weight system that is easily maneuverable
- Small ultra-light weight transducer with a palmar grip to encourage a neutral wrist position
- Slim, flexible transducer cables

Aixplorer incorporates all of these design features, and more:

- Compact design to allow the clinician to be close to the patient and monitor
- Comfortable foot rest
- Monitor can be positioned over large viewing range
- Four swivel wheels with manual brakes and front wheel directional locks
- Magnetic stylus holder for lesion measurement integrated on control panel
- Two independent transducer ports and transducer storage
- Gel bottle holders with optimal access



Aixplorer is at the forefront of ergonomics and provides the optimal working conditions for your clinical team

Superior Service from SuperSonic Imagine

Our innovative technology is something you can rely on and so is our customer service. At SuperSonic Imagine we value our customers and strive to help them in every possible way. SuperSonic Imagine offers customized solutions for your service needs, from installation to training and upgrading. We are always available to increase your productivity with a team of highly specialized clinical and technical specialists.

SuperSonic Imagine also offers a wide choice of clinical and technical education, online resources and training courses to meet your professional needs.

For support or further information contact your sales representative.

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A Team of Experts

SuperSonic Imagine, based in Aix-en-Provence, France, is a young, innovative company with a commitment to providing advanced technology to improve medical diagnosis.

Founded in 2005 by world-renowned ultrasound and medical imaging research scientists, SuperSonic Imagine has developed Aixplorer, an ultrasound system with a revolutionary imaging technology.





Patented Technology

SuperSonic Imagine holds the exclusive rights to 21 patents and submissions and benefits from a close collaboration with the Institut Langevin from the Physics and Industrial Chemistry School of Paris, a prestigious school that housed the works of famous physicists: Curie, Langevin, Joliot-Curie, De Gennes and Charpak.

This unique expertise has allowed SuperSonic Imagine to create their revolutionary ultrasound system that leverages disruptive technologies to create a breakthrough in ultrasound imaging.

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