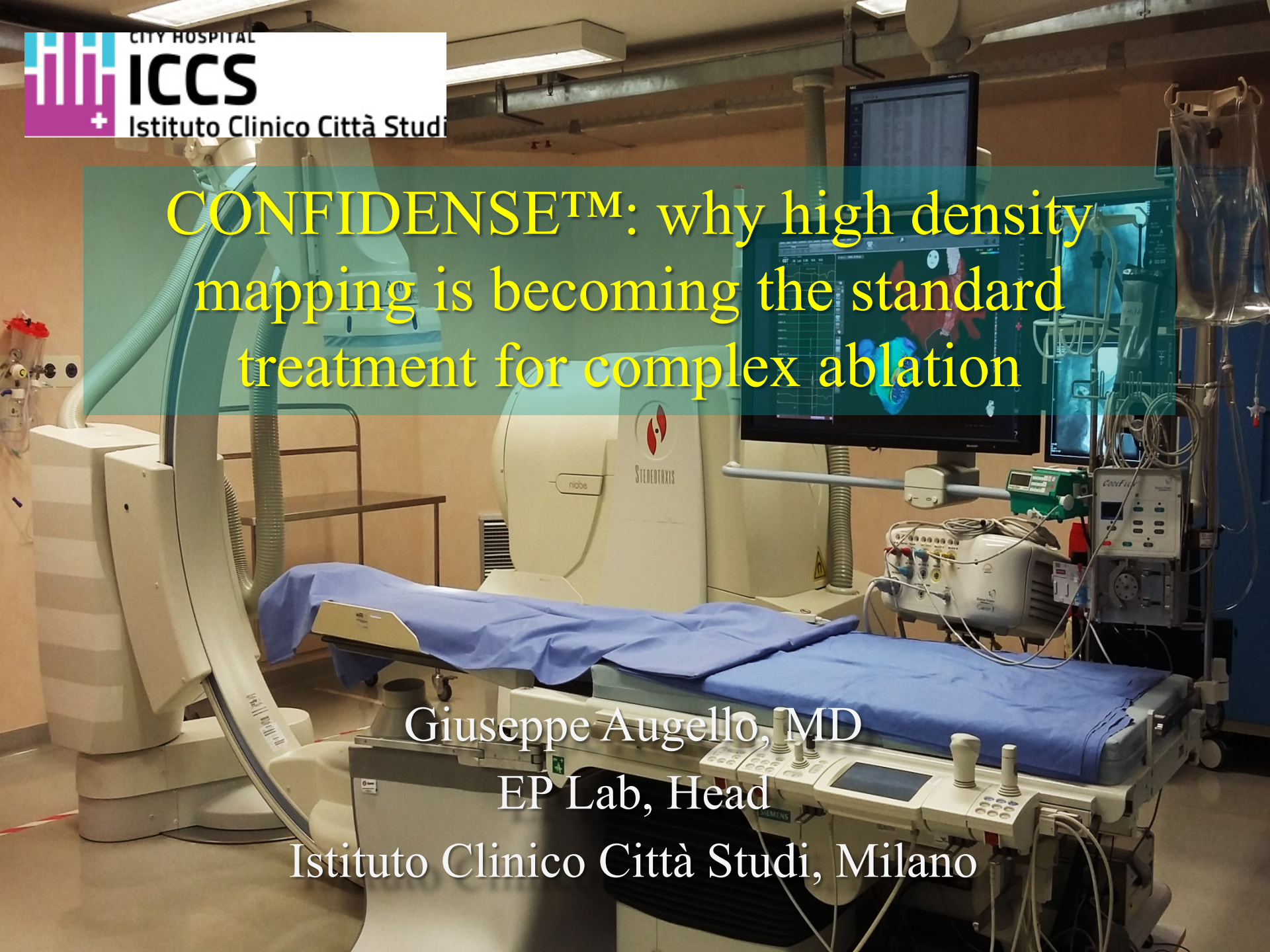


CONFIDENSE™: why high density mapping is becoming the standard treatment for complex ablation

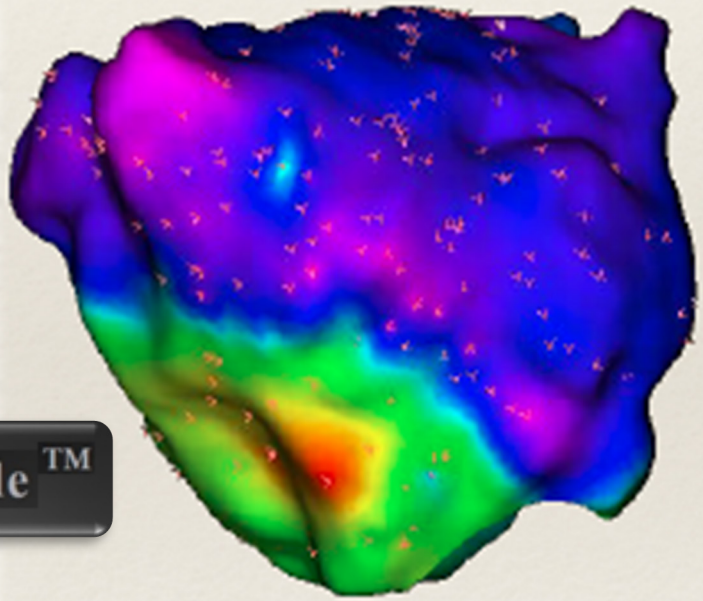
Giuseppe Augello, MD
EP Lab, Head
Istituto Clinico Città Studi, Milano

Outline

- ✓ High-density electro-anatomical (EA) mapping
- ✓ Multipolar catheters: Lasso and Pentaray
- ✓ Confidense Module technology and features
- ✓ Clinical cases
- ✓ Conclusions

CARTO® 3 SYSTEM

CONFIDENSE Module™



High-density EA mapping

High-density mapping allows rapid assessment of:

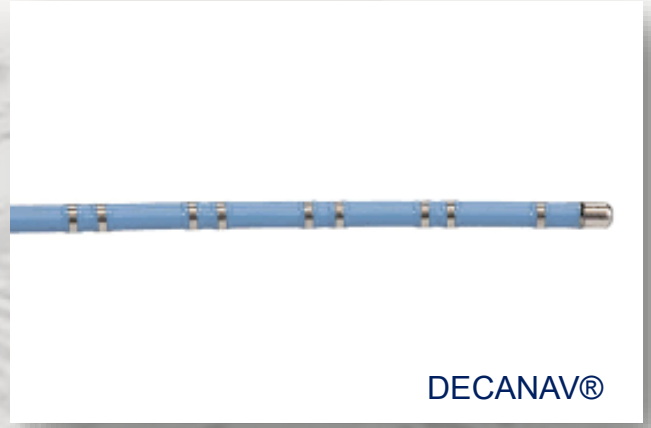
- Focal and Macroreentrant Atrial and Ventricular Tachycardia
- Complex Fractionated Atrial Electrical

TODAY

- Focal arrhythmia mapping can be challenging due to unstability of foci and/or sensibility to bumping with ablation catheter
- Reentrant circuits are challenging to map for significant scar with fractionated and multicomponent electrograms, limiting local time annotation;
- Entrainment and PPI mapping techniques may be difficult to perform and interpret due to high output pacing, lack of capture in low voltage area and interruption/degeneration of AT;
- Reliable CFAE mapping with the ablation catheter is time consuming;
- Multipolar catheters may be increase clinical outcome for complex tachycardia procedure with respect to linear catheter (standard).

Multipolar catheters

Multipolar catheters create high-density EA maps



Advantages

- Higher mapping resolution (area of low voltage, channels etc.)
- Usefull for unsustained tachycardia
- Decreasing fluoro and mapping time
- Smaller electrodes identify better endocardiac substrate with accurate time annotation
- Pacing with capture at lower output because of increased electric density

Confidense™ Module

Advanced Tool for automatic, accurate and fast EA mapping

Complex arrhythmias

Manual point-to-point mapping

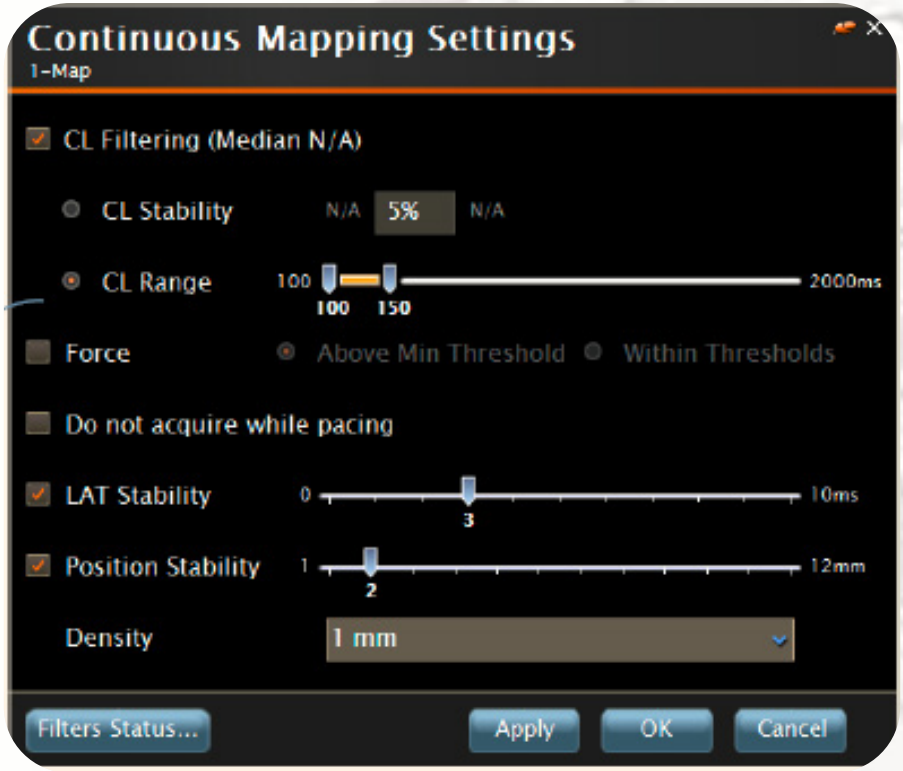
- Time consuming
- Operator-dependent
- May not always be feasible
- Could be difficult for irregular or non-sustained tachycardia
- Loss resolution
- Non-contact information

Automatic mapping

- Accurate
- Fast
- High-density mapping
- Continuous mapping
- Safe
- Automatic validation

How I can map .....

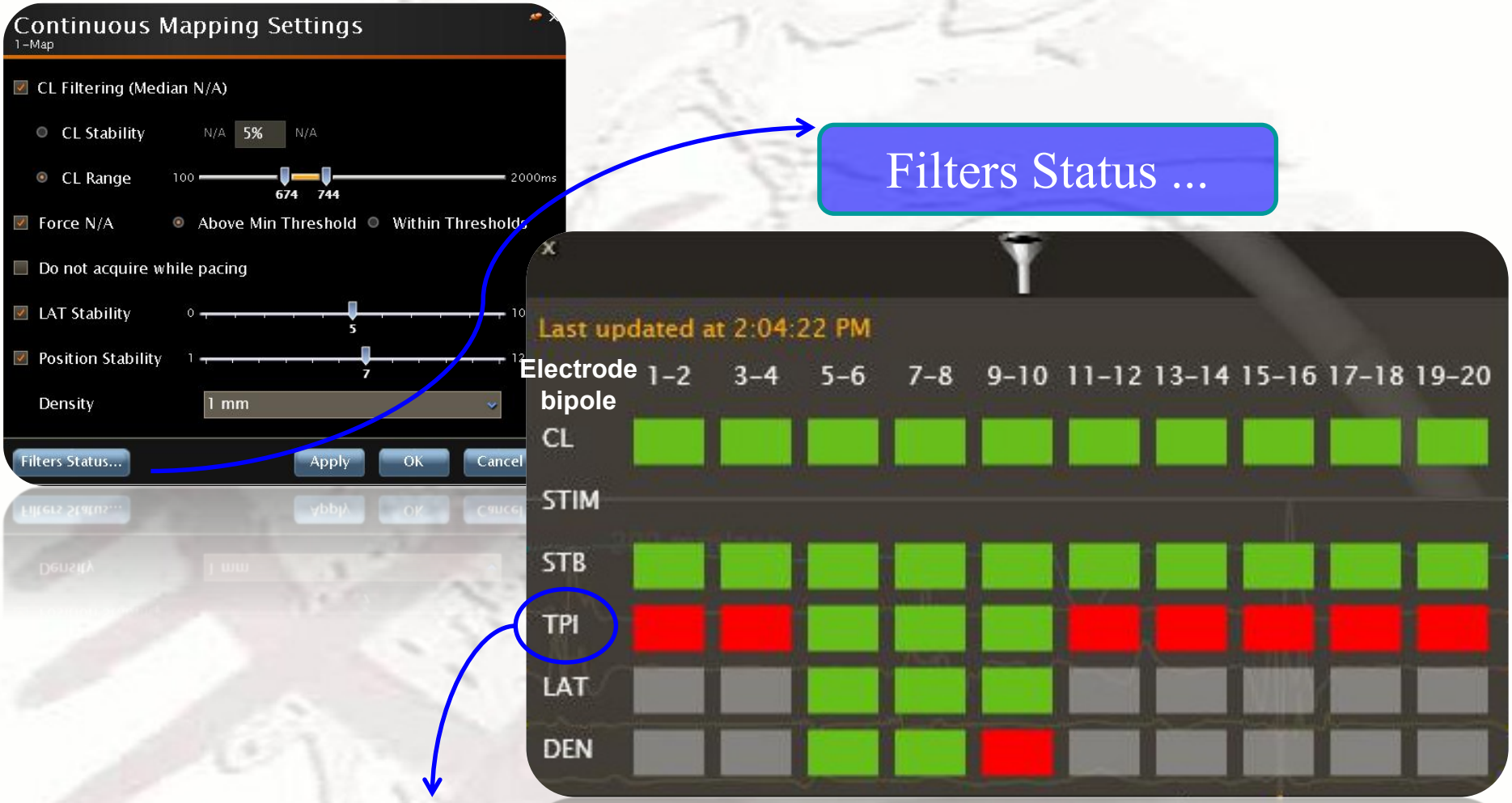
Confidense™ Module



- Cycle Length -> Only acquiring points with a consistent cycle length (CL)
- Force -> Ensuring the catheter is in contact at the time of point collection
- Catheter stability -> Acquiring points when the catheter location is stable
  - LAT stability
  - Position stability
- Density -> Minimises acquisition of points when the catheter is not being moved

CONFIDENSE™ Mapping Module automate the mapping and validation processes

Confidense™ Module

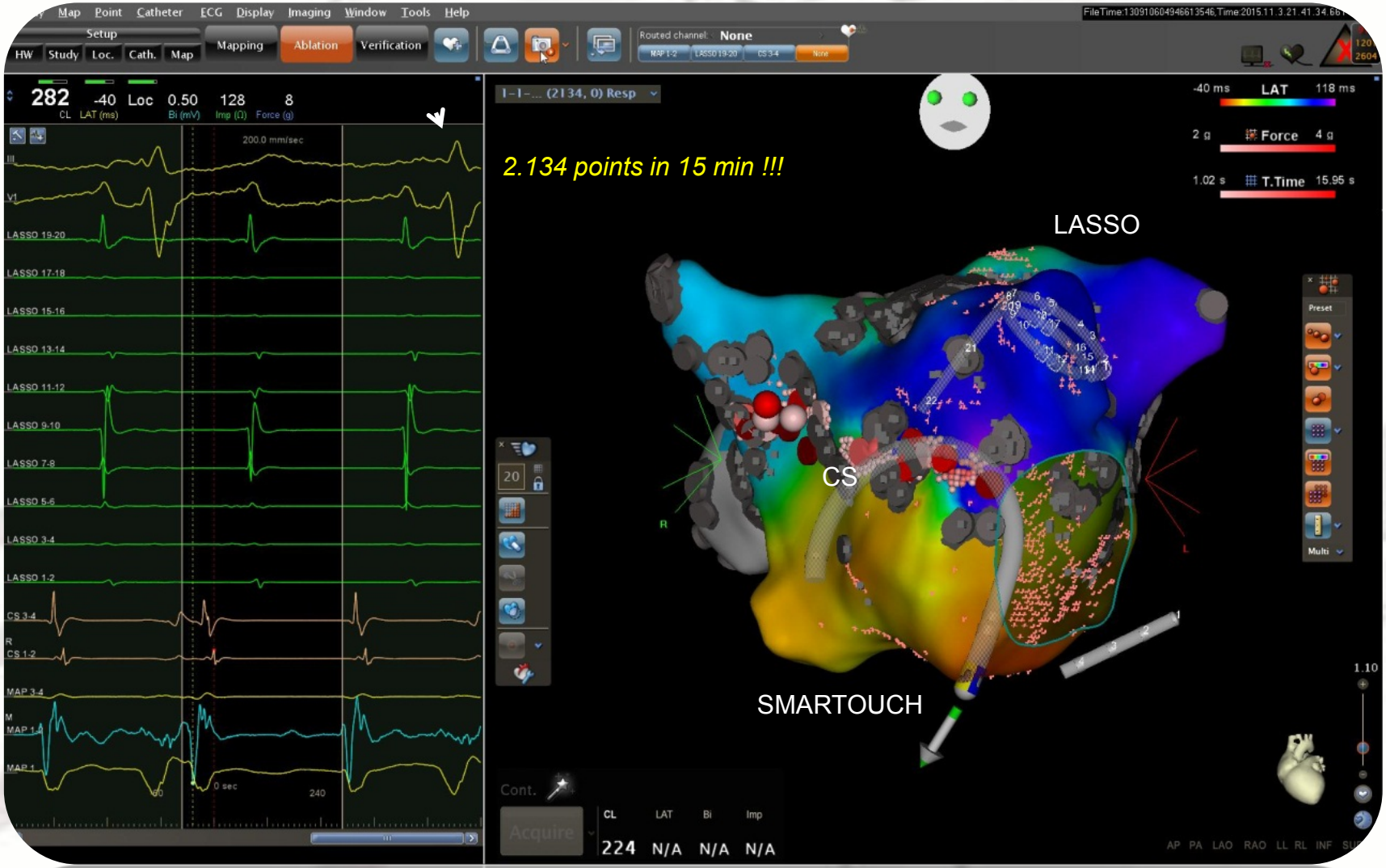


Tissue Proximity Indicator (TPI) – Multipolar catheter

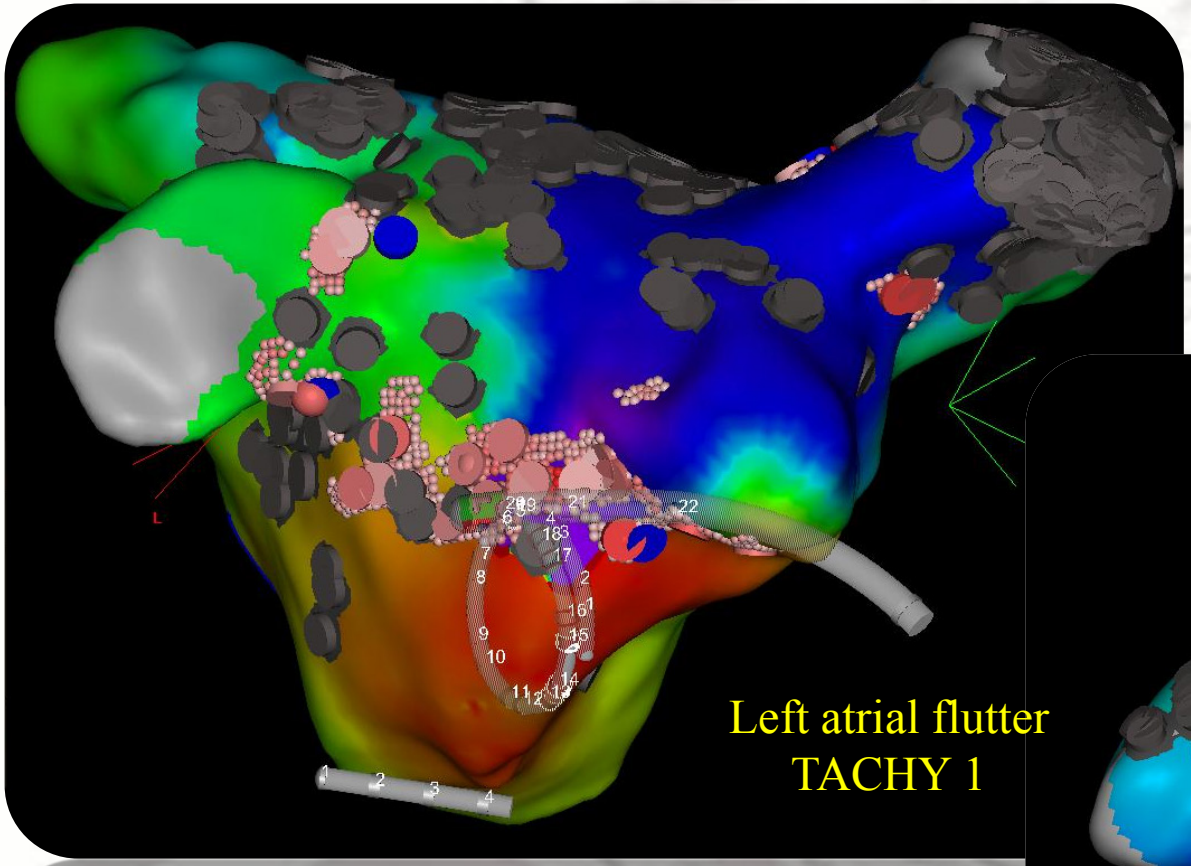
Tissue Proximity technology uses impedance measurements to determine the electrode proximity to cardiac tissue.

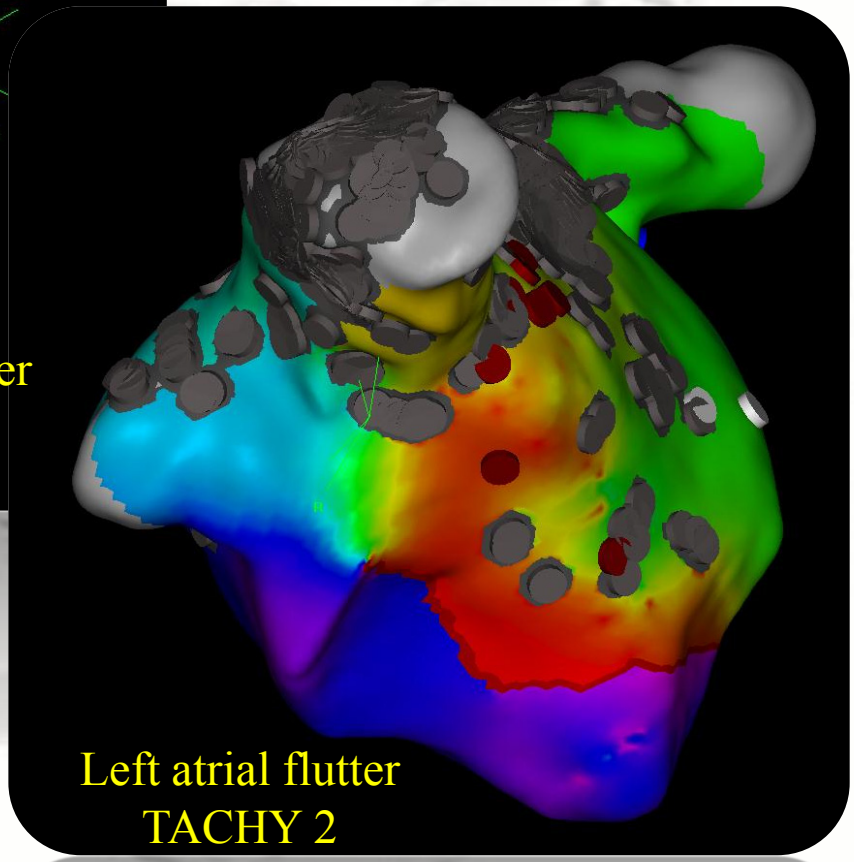
Atypical flutter mapping - Confidense™

Atypical flutter mapping - Confidense™

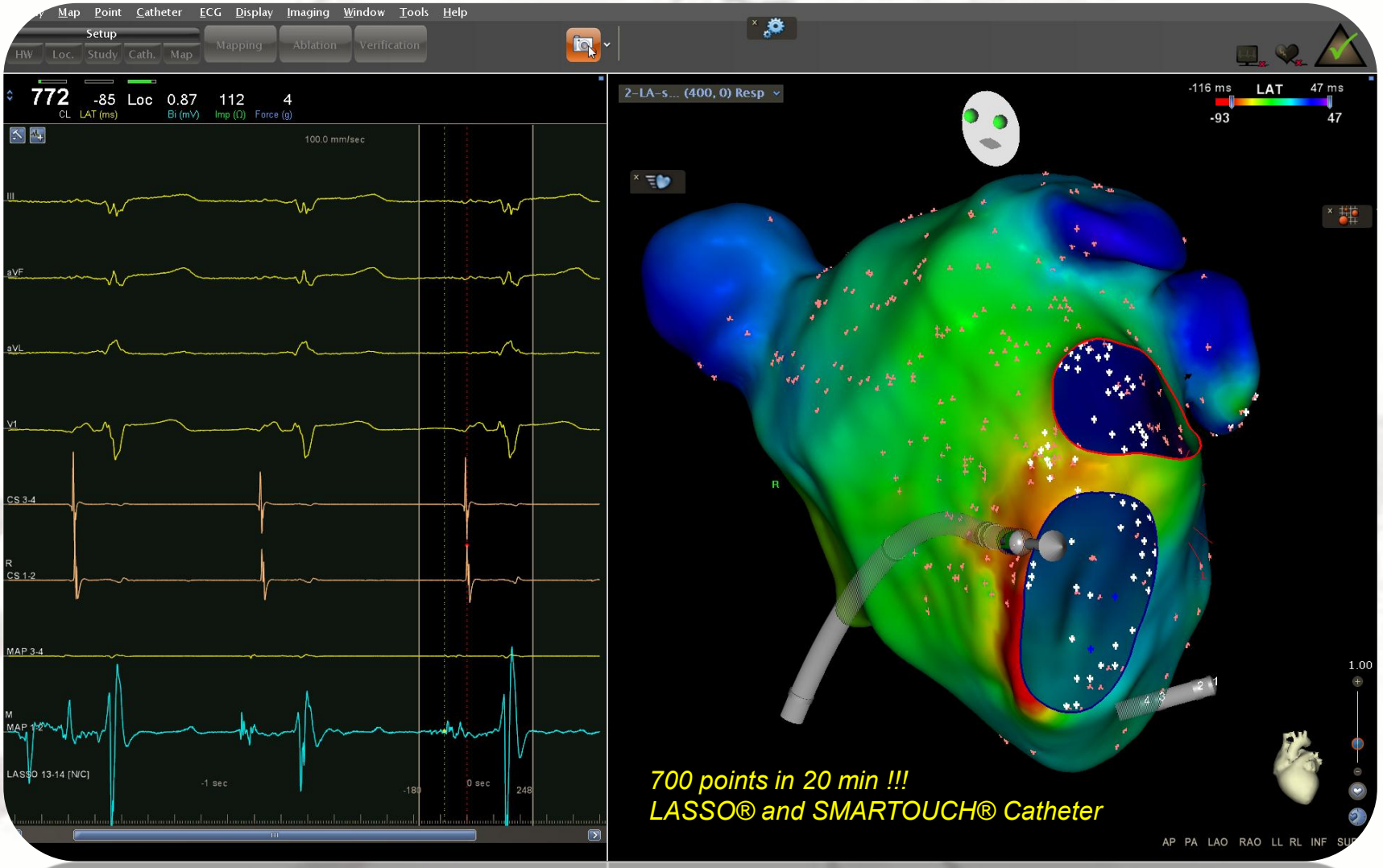


Atypical flutter mapping - Confidense™

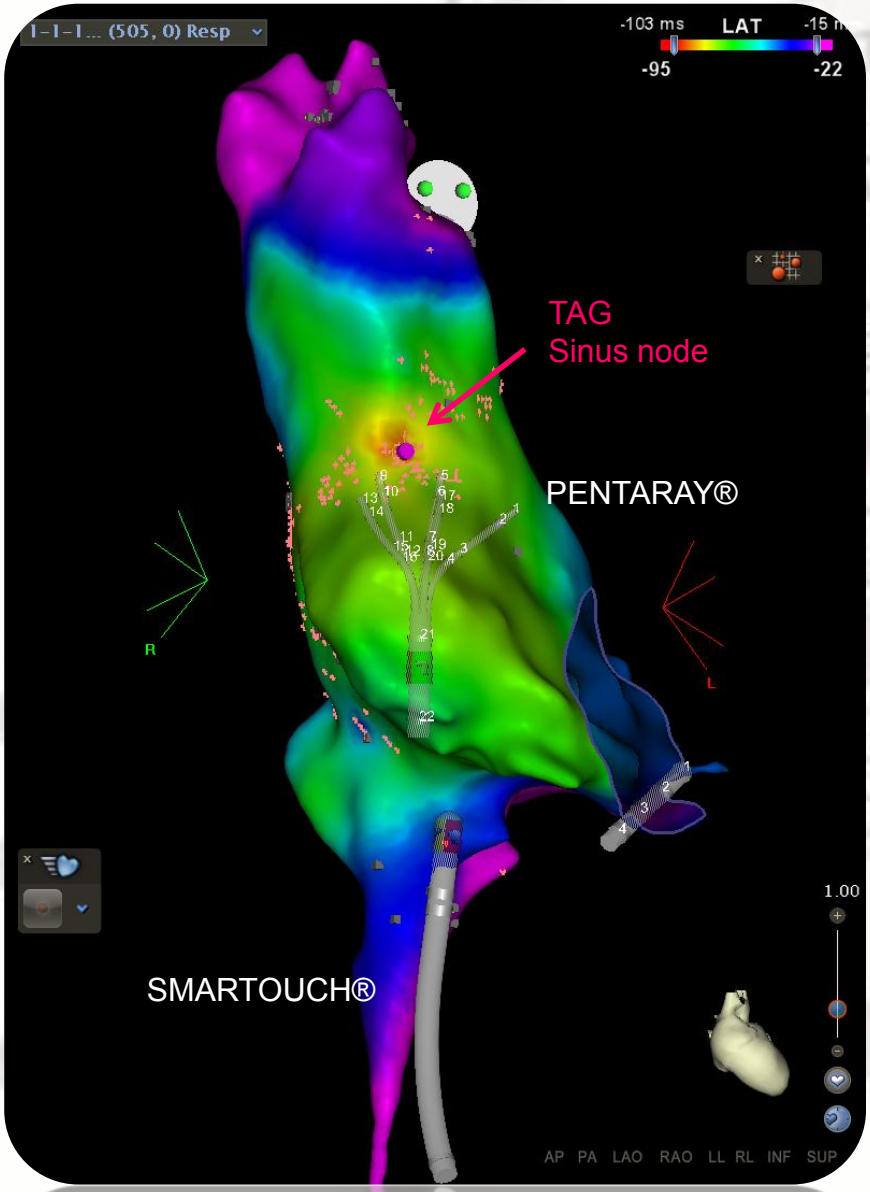


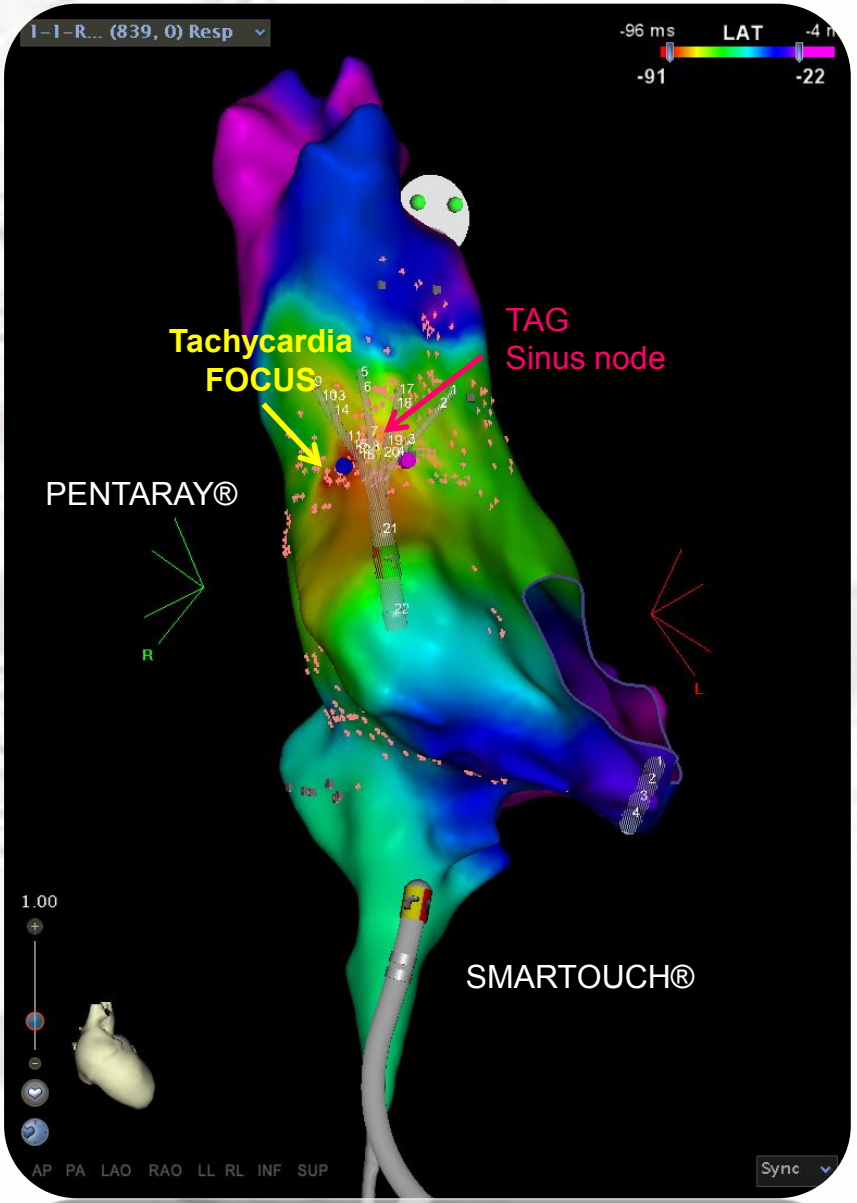


Non PV Foci - Confidense™

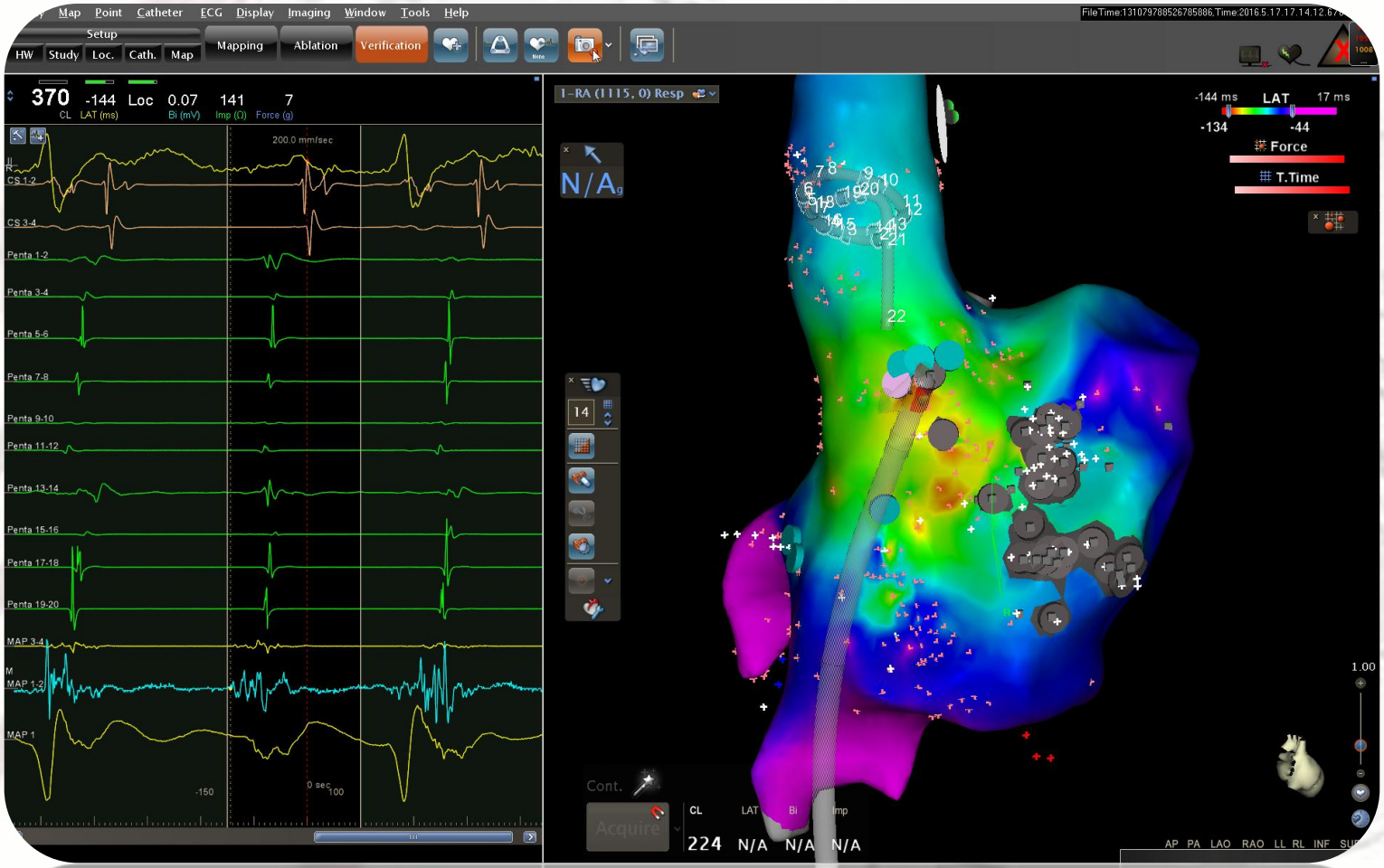


Parisinusal - Confidense™

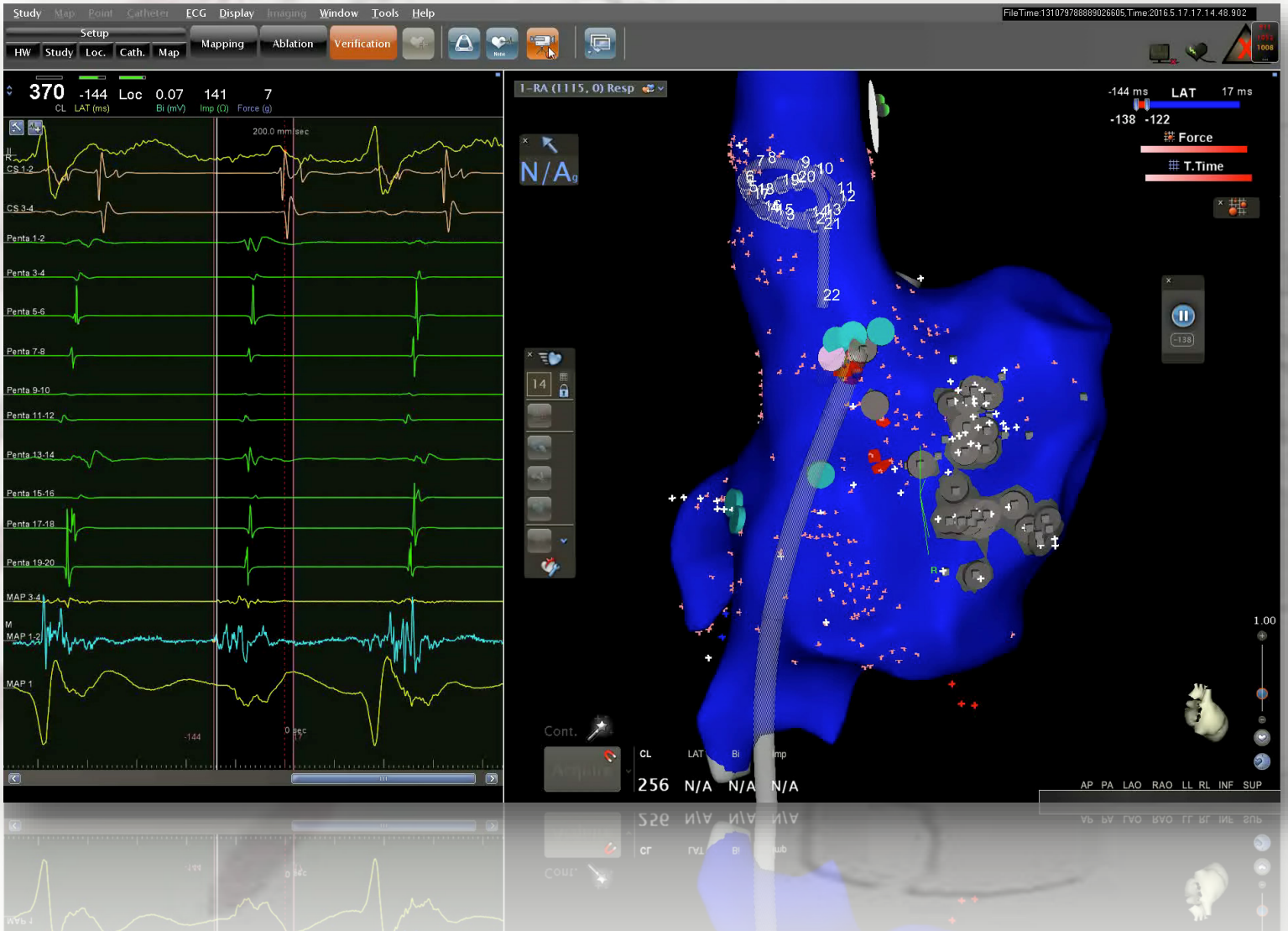




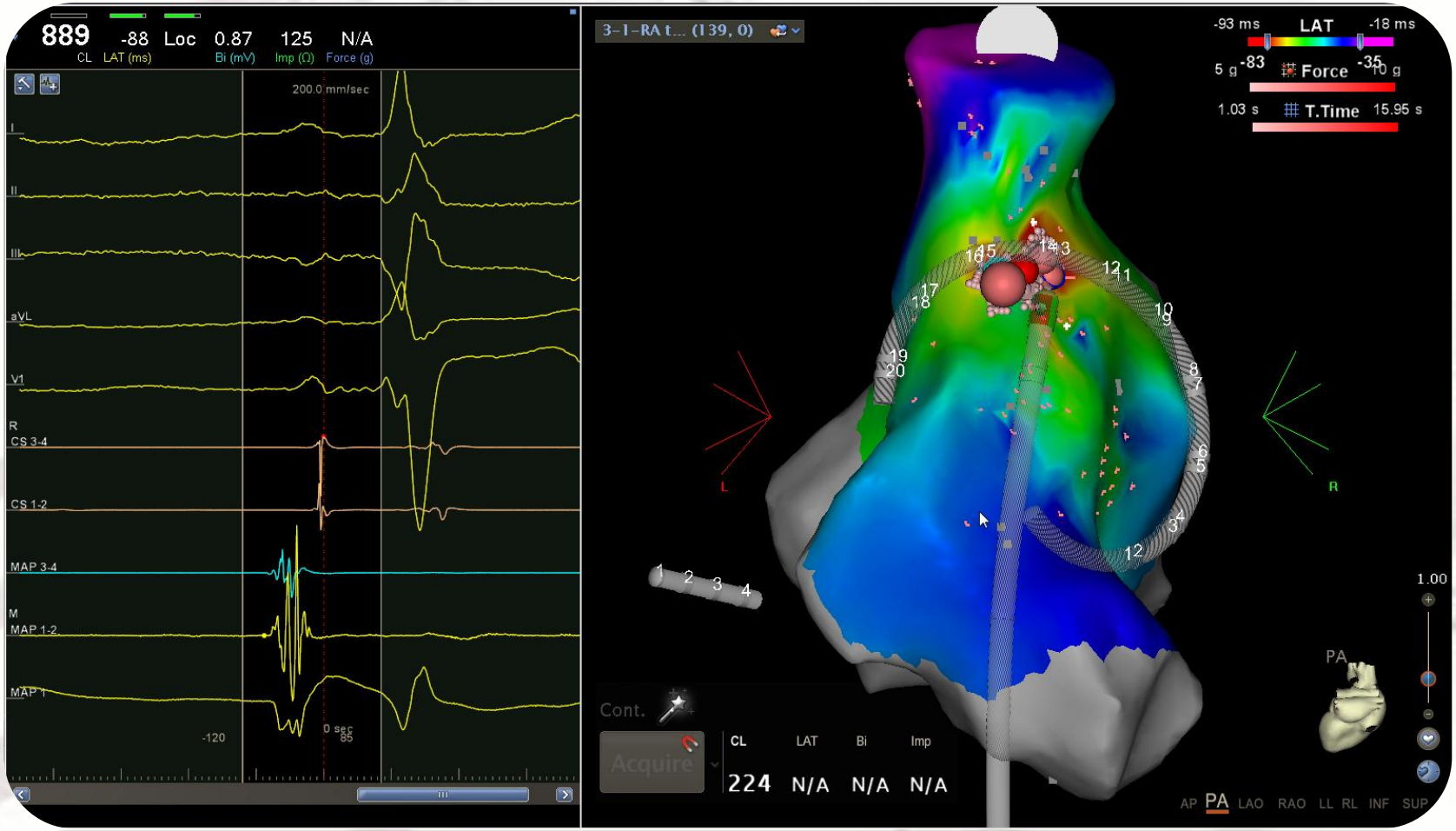
Right Atrial Tachycardia - Confidense™



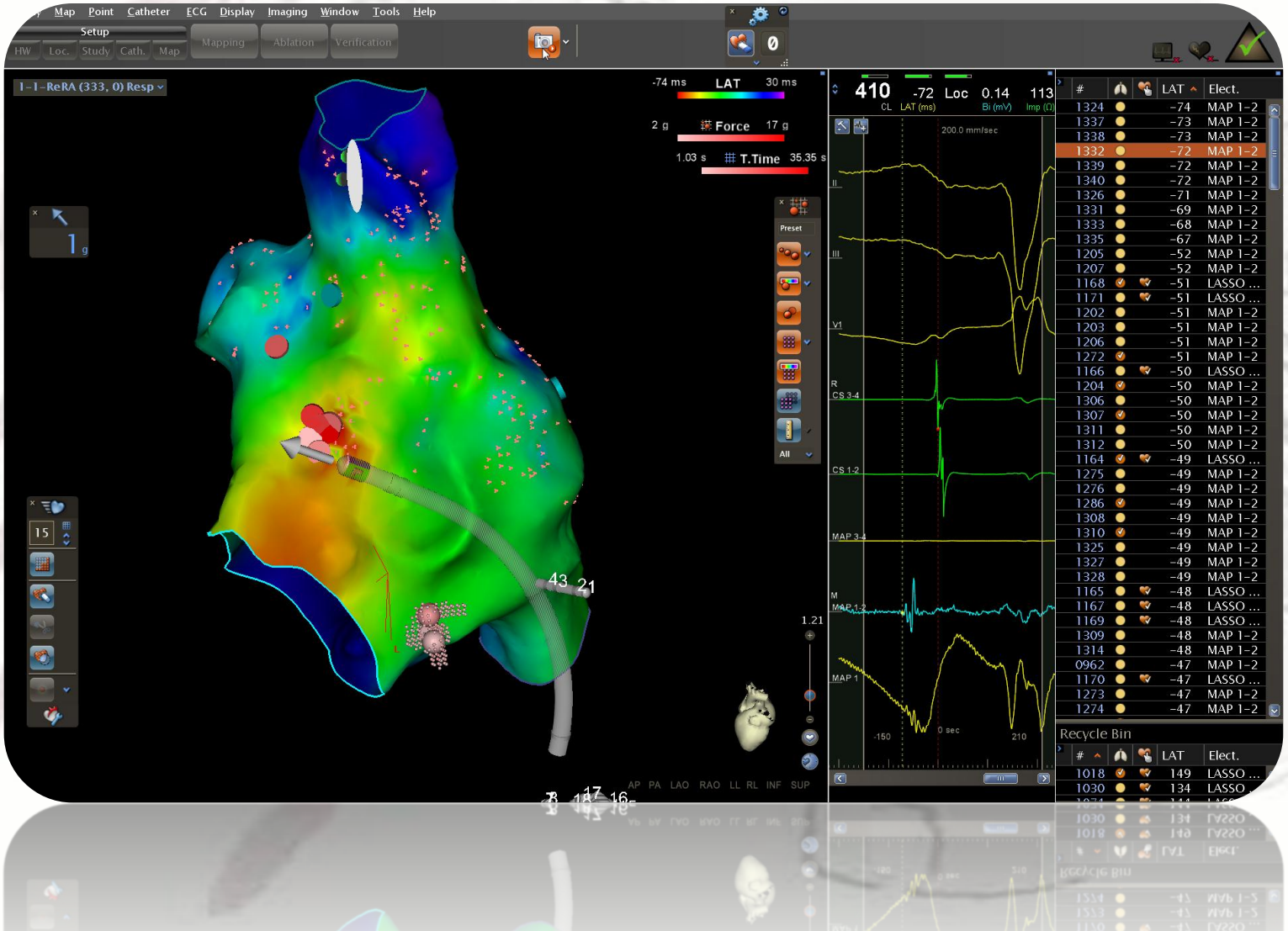
Right Atrial Tachycardia - Confidense™



Right Atrial Tachycardia - Confidense™

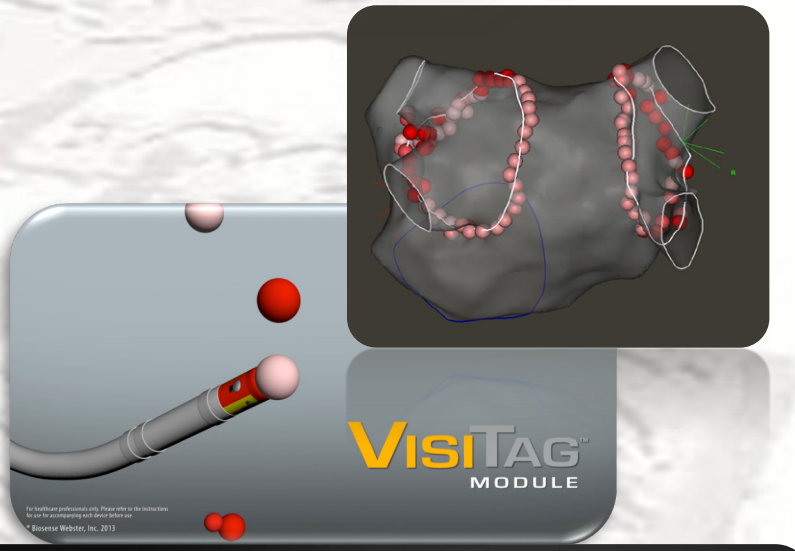


Parahissian Atrial Tachycardia - Confidense™



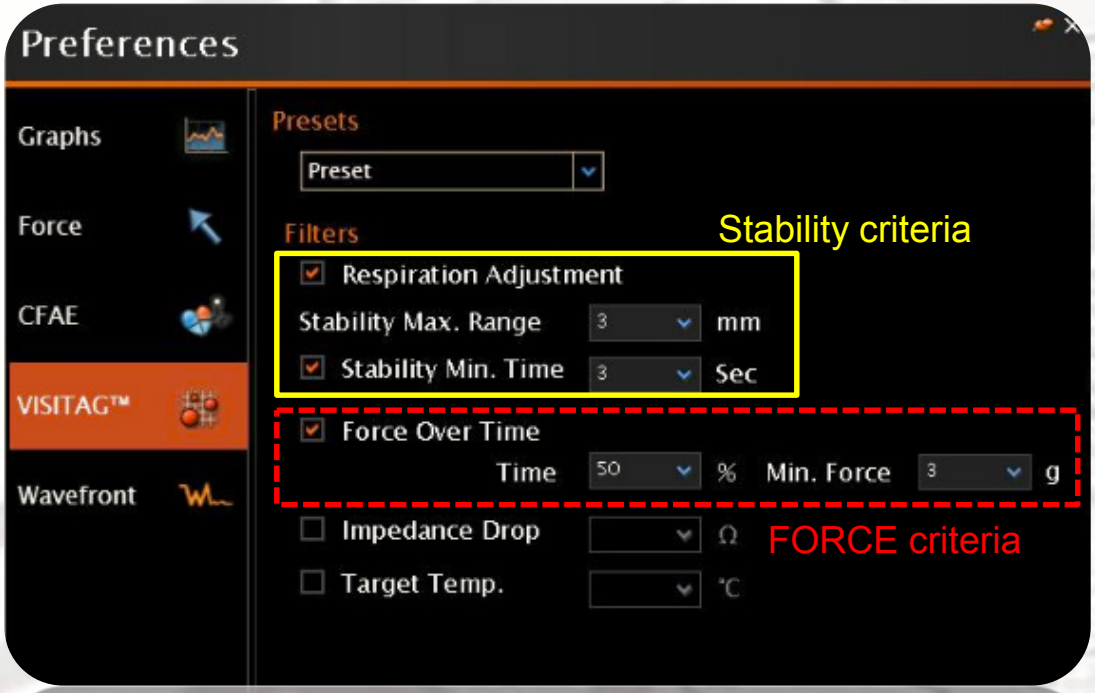
CARTO3™ Technologies ...

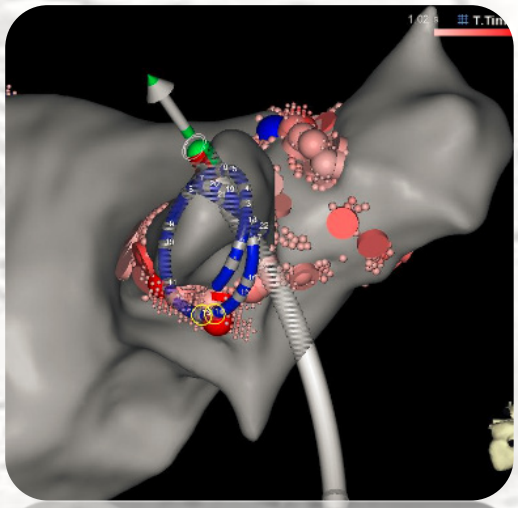
- Intracardiac fluoroscopy navigation
- CARTO 3™ : first mapping system
- CARTO 3™ Technology
- CARTO 3™ MODULES
  - MEM - AccuRESP™ – VISITAG™
  - SMARTOUCH® - CONFIDENSE™
  - PASO™ - REPLAY™
- Activation Mapping
- Propagation Mapping
- Substrate/Voltage Mapping
- Integration Imaging MERGE

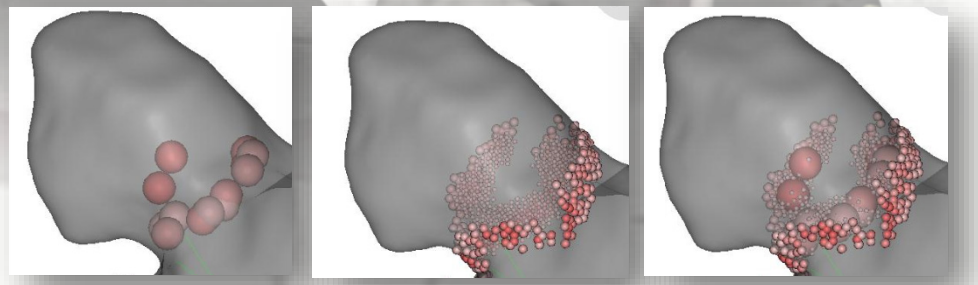


VISITAG™ Module

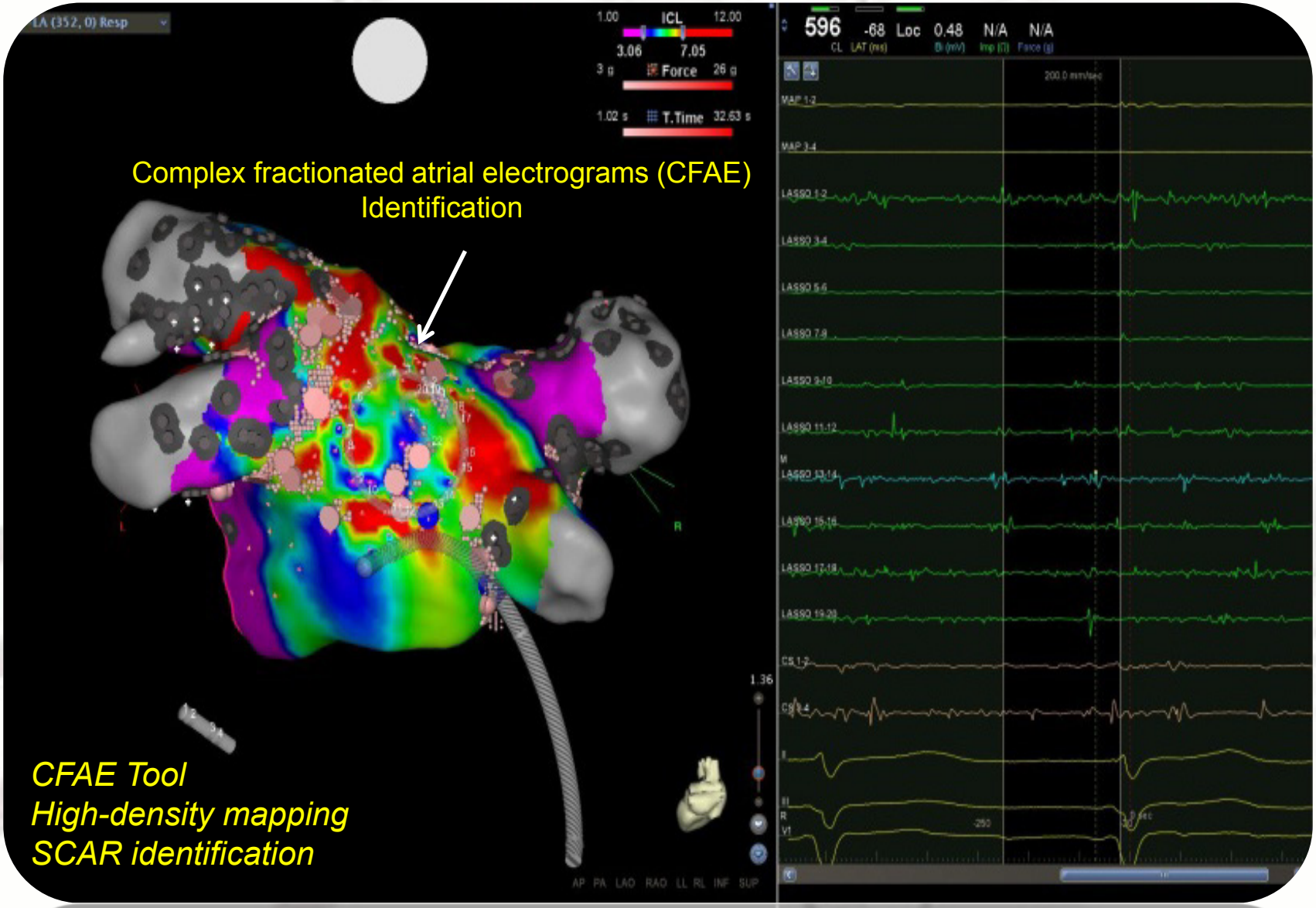
First technology to incorporate parameters of lesion formation that can be indexed by the user, according to their ablation strategy







CFAE - High-density mapping



EA Mapping Protocol

- Reference point and WOI choosing

  Continuous mapping settings (CONFIDENSE™ module) and/or manual mapping

- Late Activation Time (LAT) was performed initially with Lasso/Pentaray catheter by using CONFIDENSE™ module

- Multipolar catheter is used in combination to Thermocool Smartouch® catheter to refine the map

- After a high-density EA mapping, consistency of the map is confirmed by entrainment manouvre

- At the end, we can identify the precocity maximum level or macro reentrance circuit to arrhythmia treatment

Discussion...

- In these cases, we show that **high-density EA mapping** can improve clinical outcome in terms of efficacy
- **Confidense™ module** allows to create automatic and accurate EA maps with high-density of points in a few time
- Both automatic and manual mapping through **multipolar catheters** improves the quality of the EA maps, highlighting the details

Limitations

- All the processes depend on 3D reconstruction, catheters manipulation and, most of all, by automatic annotation criteria

Implications

- In the future, Confidense™ Module and Multipolar catheters may be used to facilitate complex arrhythmias and improve clinical outcome

Conclusions...

- ✓ High-density EA mapping
  - Improve clinical assessment
  - Reduced significantly fluoroscopy time during EA mapping

- ✓ CONFIDENSE™ module can guide the operator toward a more efficacy and efficienty clinical outcome

- ✓ Operator can choose objective parameters in such a tool before and during the clinical procedure


Thanks for the attention ...