

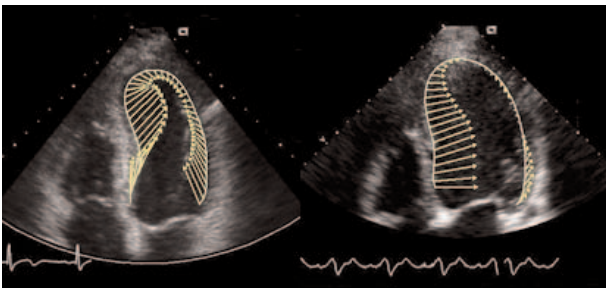
Axius Velocity Vector Imaging

New insights into cardiovascular function

Axius VVI

Axius Velocity Vector Imaging

Dynamic new assessment of myocardial mechanics



▶ Normal VVI with a narrow QRS complex compared to a wide complex LBBB.

Display, measure and visualize myocardial mechanics like never before with Axius Velocity Vector Imaging™ (VVI). VVI uses individual vectors to display direction and relative velocity of tissue motion from frame to frame, so you can instantaneously measure motion at any point in the cardiac cycle. This unique graphical presentation allows you to easily visualize cardiac contraction-relaxation mechanics and gather information for a variety of applications, including rapid assessment of ventricular synergy in heart failure. VVI is a dynamic new method for assessing cardiac function that significantly enhances your clinical capabilities.

▶ Work from every angle.

VVI analysis is independent of ultrasound beam alignment or transducer location, so it's free to study all chambers of the heart from any angle. It uses DICOM format 2D images and applies a multi-faceted tissue tracking algorithm to track tissue points frame to frame. You can measure velocities in any direction in the imaging field of view. And this method uses higher frame rates to produce superior temporal and spatial resolution that improves cardiac event measurement.

▶ Sophisticated motion tracking.

VVI is highly suitable for clarifying motion mechanics and simplifying myocardial assessment. Moving vectors guide your vision, making it easy to see. VVI tracks user-defined reference points throughout one or more cardiac cycles to extract motion estimates and display inward-outward border motion. By tracking tissue movement at and around the border, VVI displays accurate velocities for longitudinal, tangential, and radial motion, as well as left ventricular twisting — never visualized until now.

► **Advanced innovation. Better clinical outcomes.**

With VVI, you get an exciting new dynamic assessment of any myocardial motion, including the left ventricle, right ventricle, left and right atria and aortic root. Simply select your segmental and regional velocities with time to peak measurements and parametric displays. You can also easily identify wall motion changes in serial studies of the same patient, or detect activity that indicates specific cardiac pathology. And the dynamic visual assessment you see with VVI supports current interest in evaluating heart failure patients for mechanical dyssynchrony.

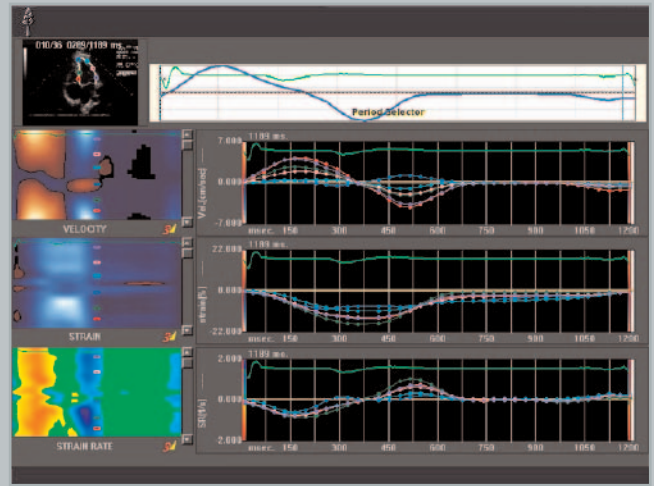
Available only from Siemens, VVI works with any ACUSON Sequoia™ echocardiography system image, independent of software revision, using any transducer, including TEE, vascular and ACUSON AcuNav™ ultrasound catheters. Truly versatile, VVI delivers new insights into cardiovascular applications.

► **Assessment for every phase of care.**

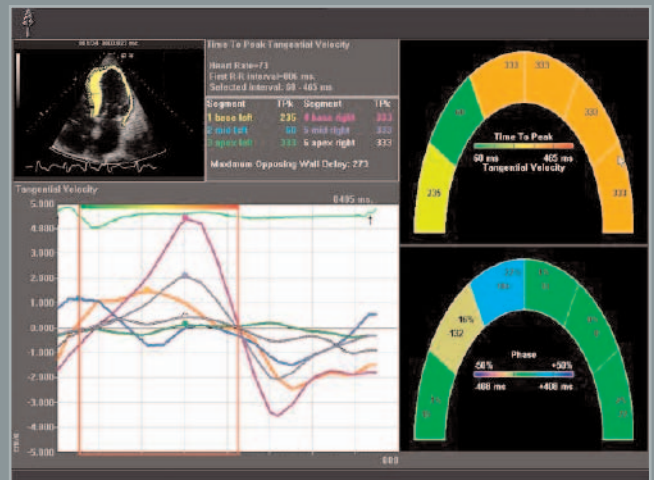
VVI is one of a collection of methods for dynamic ventricular assessment from Siemens. Go to www.siemens.com/VVI to discover more.

"VVI is a promising new technology that provides unique insight into ventricular mechanics. We have found it to be helpful in evaluating patients with hypertrophic cardiomyopathy and candidates for biventricular pacing."

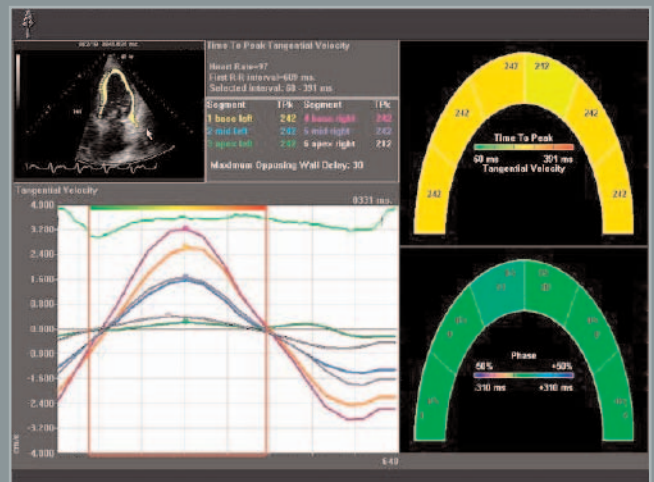
Jim Thomas, M.D., Charles and Lorraine Moore, Chair of Cardiovascular Imaging, Professor of Medicine and Biomedical Engineering, Department of Cardiovascular Medicine, Cleveland Clinic Foundation.



► Regional VVI quantification and parametric displays in a normal study.



► A) A heart failure patient with regional dyssynchrony and bi-ventricular pacemaker.



► B) The same patient after resynchronization demonstrating improvement.

Vannan M, Pedrizzetti G, Li P, Gurudevan P, Houle H, Main J, Jackson J, Nanda N, "Effect of Cardiac Resynchronization Therapy on Longitudinal and Circumferential Left Ventricular Mechanics by Velocity Vector Imaging: Description and Initial Clinical Application of a Novel Method Using High-Frame Rate B-Mode Echocardiographic Images," ECHOCARDIOGRAPHY: A Jnl. of CV Ultrasound & Allied Tech., 2005; Vol. 22, No. 10: 826-830

Cannesson M, Tanabe M, Suffoletto MS, Schwartzman D, Gorcsan J. "Velocity vector imaging to quantify ventricular dyssynchrony and predict response to cardiac resynchronization therapy," American Journal of Cardiology, 2006 (In Press).

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