Gemstone™ Spectral Imaging Viewer: Unlock the power of Spectral Imaging

Interactive spectral energy anatomy visualization
and data assessment – for quick exam review
and comprehensive problem solving.

Looking for a fast, accurate CT diagnosis from a single exam?

GSI Viewer is an advanced CT application that unlocks the diagnostic capability of Gemstone Spectral Imaging (GSI) acquired using the Discovery™ CT750 HD. It combines monochromatic spectral images with material densities to deliver user-friendly, interactive visualization and problem solving for anatomical imaging.

By providing unique quantitative information on the material composition of anatomy, GSI Viewer expands CT's problem-solving capabilities – for a fast, accurate, and confident diagnosis using dual energy.

Review and problem solve using 101 monochromatic energies

Easily select the best monochromatic level for optimum image quality with the least noise. By simply selecting two regions of interest (ROIs), GSI Viewer will determine the optimum energy for best contrast to noise. Or use the HU curve across the 101 energies to determine the spectral signature assisting in material separation, e.g. enhancing vs. non-enhancing lesions.
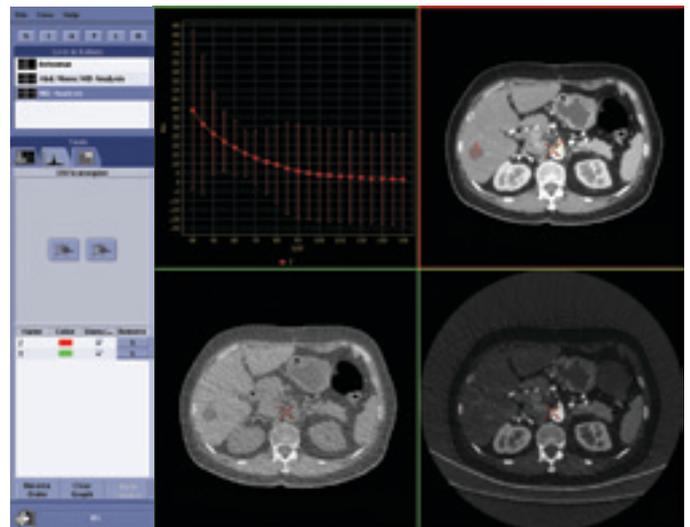

Monochromatic review with spectral HU curve to show spectral signature.

Problem solved.

Select energy levels for optimal image clarity

Routinely review monochromatic images in multiplanar reformat. You can also adjust monochromatic energy levels to best differentiate grey and white matter for neuro assessment. By optimizing image contrast and reducing beam-hardening artifacts, you can unmask unseen anatomy and ensure accurate data for quantitative analysis.

Monochromatic review

70 keV

66 keV

60 keV
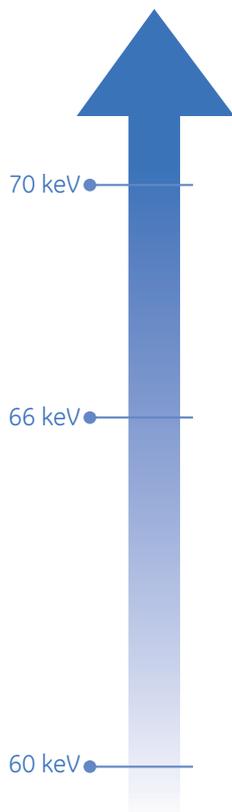
Separate materials for closer evaluation

Separate material-decomposed images into calcium, iodine and water to create basis pairs for material-density analysis. Then generate virtual non-contrast like CT images from material-density pairs, which are not available with conventional contrast-enhanced CT imaging.

Select ideal basis pairs depending on the clinical question. The water-iodine pair, for example, may help better characterize small lesions.
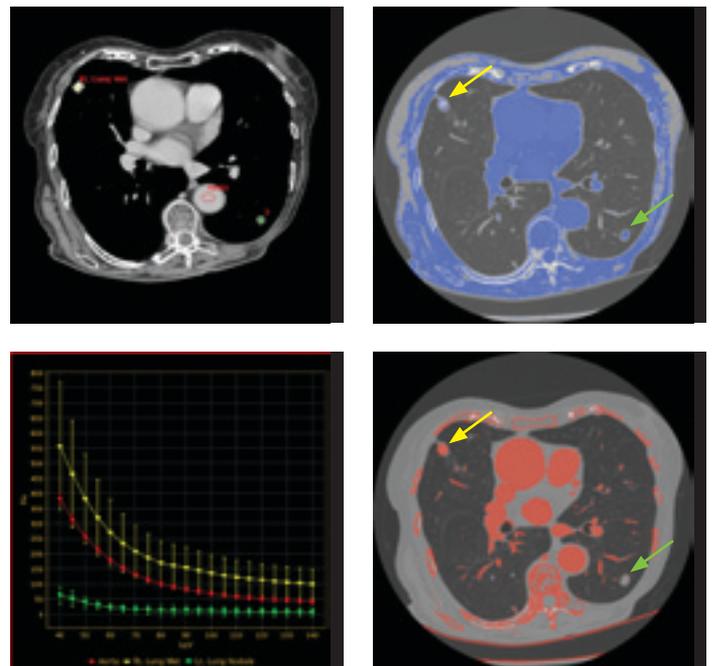
An enhancing lung lesion is visualized using the MD iodine color overlay image (yellow arrow); a non-enhancing lesion is confirmed using both the material-density water and iodine color overlay (green arrow). The spectral HU curves may be used to verify enhancing vs. non-enhancing lesions as well.

Image overlay

For more detailed analysis, you can overlay material-density or Effective Atomic Number (effective-Z) information on top of monochromatic images in a single view confirming density of interest. Adjust the window level and the opacity of the image to optimize visualization.
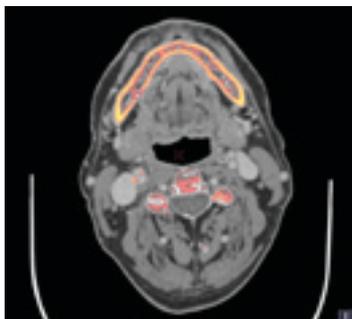
Effective-Z overlay on monochromatic image that highlights calcification in the artery.

Interactive data analysis

Use Plot Analysis to display ROIs as graphical plots. Any combination of material-density, effective-Z and monochromatic images can be analyzed. Data analysis includes a histogram, scatter plot, spectral HU curve and optimal CNR (contrast-to-noise ratio).
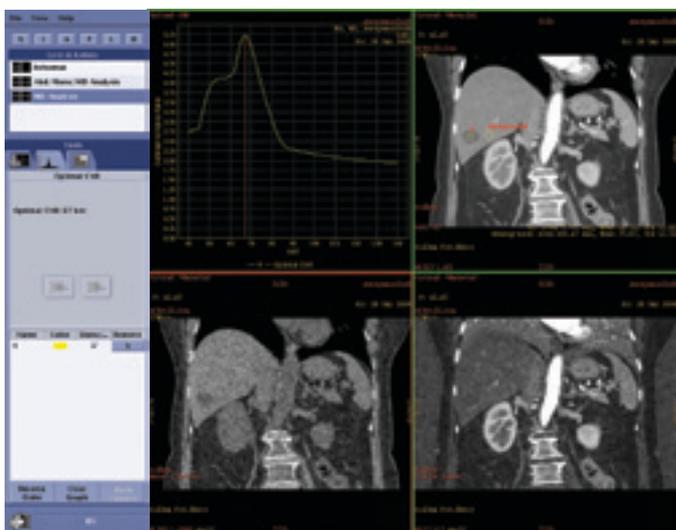
CNR plot showing optimum monochromatic energy level by selecting a lesion and parenchyma.
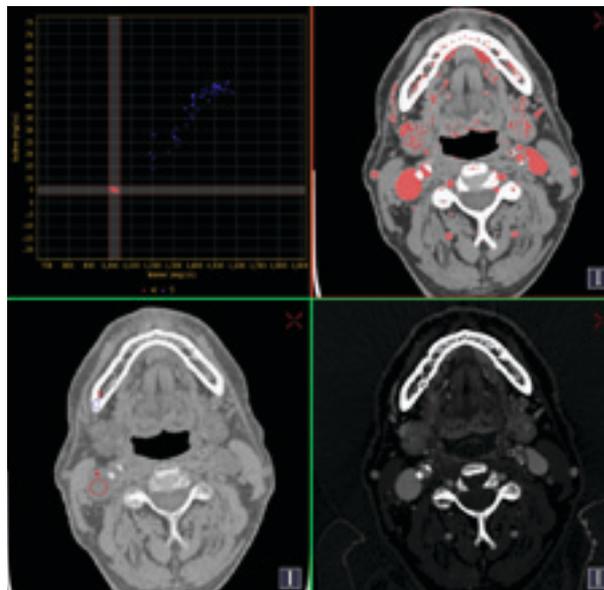
Advanced features

Any chosen material can be selected and mapped using a volume of interest (VOI) tool across the image.

Another advanced feature allows you to save data from any ROI for later analysis, so you can collect statistical information for presentations, publications or research.

Iodine was selected and mapped across the image.

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imagination at work