

Contrast resolution: The ability to distinguish between objects with similar densities. Also called low contrast resolution.

DFOV: Display field of view-- determines how much of the scan field of view is reconstructed into an image. DFOV can be less than or equal to the SFOV but cannot be more than the SFOV.

High contrast resolution: The ability to distinguish sharp edges between small objects that differ greatly in density. Also called spatial resolution.

Image data: Pixel values calculated from the scan data that are used to display and analyze images. Also called reconstructed data.

Isocenter: Three dimensional center point of the gantry that the tube and detector rotate around.

kVp: Kilovolts peak--unit for measuring the potential difference across the x-ray tube. Affects the energy of the electrons flowing from the cathode to anode and the resulting x-ray spectrum.

mA: Milliampere--unit for measuring x-ray tube current or the number of electrons flowing from the cathode to anode.

mAs: Milliampere seconds--the product of tube current and exposure time.

mAs = mA x exposure time

Matrix: Two dimensional grid of pixels, used to compose images on a display monitor. The matrix determines the number of rows and columns.

Partial volume effect: When different tissues/objects are represented by the same voxel. Each tissue/object only partially fills the voxel and is therefore a partial volume. Also call partial volume averaging.

Pixel: Two dimensional picture element that makes up the matrix. Each pixel represents a CT number and is the building block of the matrix and image.

Pixel Size = DFOV/matrix

Prospective data: An image automatically reconstructed from the scan data.

Recon Type: Mathematical formula used to convert scan data into image data. Different types of algorithms enhance different aspects of the data.

Reformatted image: A image created from axial image data. When the axial data is re-arranged to represent other planes such as coronal and sagittal.

Retrospective image: An image reconstructed at the operators request from scan/raw data.

Scan/Raw data: Binary numbers that represent the digitized x-ray signal collected by the detector.

Scan Plane: Position in degrees that describes the location of the x-ray tube for a scout scan. When the tube is at the top center of the gantry it is at 0° azimuth.

Screen saved data: A 'copy' of a displayed image which is sometimes described as an electronic photograph.

SFOV: Scan field of view--the parameter that determines how much anatomy is scanned. The SFOV should exceed the dimensions of the anatomy.

Target: To reconstruct only a portion of the SFOV.

Voxel: Three dimensional element of anatomy represented by the two dimensional pixel.
Voxel volume = pixel height x pixel width x slice thickness

Window level: Determines the center CT number value displayed by the gray scale range.

Window width: Determines the range of CT numbers displayed by the gray scale. CT numbers above the range are displayed as white and CT numbers below the range are displayed as black.

Pixel Size

The pixel size can be calculated by dividing the DFOV in mm by 512 (the matrix). The depth the pixel represents is determined by the slice thickness.

PIXEL SIZE IN MILLIMETERS

DFOV in cm and mm	512x512
10 cm, 100 mm	0.20
15 cm, 150 mm	0.29
20 cm, 200 mm	0.39
22 cm, 220 mm	0.43
25 cm, 250 mm	0.49
30 cm, 300 mm	0.59
35 cm, 350 mm	0.68
40 cm, 400 mm	0.78
44 cm, 440 mm	0.86
50 cm, 500 mm	0.98