

APPLICATION

The Multi Voxel MRS Application is an optional application for Canon Medical Systems magnetic resonance imaging (MRI) systems.

This application provides advanced functions for proton spectroscopy.

Proton spectroscopy provides spectral and metabolic information for enhanced diagnostic confidence in neuro, prostate, and breast examinations and is fully integrated in the imaging routine.

APPLICABLE COMBINATIONS

This application is applicable to the following systems.

System	Software version
Vantage Galan 3T	V4.0 or later
Vantage Titan 3T	V1.35 or later
Vantage Orian	V4.5 or later
Vantage Fortian	V8.0 or later
Vantage Titan	V1.37 or later
Vantage Elan	V3.0 or later
EXCELART Vantage Atlas	V1.36

The optional mNeuro Package and Single Voxel MRS Application must be installed (except in the case of Second Console).

COMPOSITION

- Software (License).....1 set

This application does not include an operation manual. Refer to the operation manual supplied with the MRI system.

PERFORMANCE SPECIFICATIONS

Multi Voxel MRS

Multi Voxel MRS Application provides functions for multi voxel MR spectroscopy. Spectral data processing and analysis are available on the console.

Chemical-shift images can be generated and overlaid on the corresponding high-resolution anatomical image. It is possible to compare two sets of data simultaneously on the console.

- Field strength: 1.5 T or 3 T
- Target nucleus: ¹H (Proton)
- Target anatomy: Head
Prostate and Breast (V3.5 or later)
- Data acquisition: Multi-voxel
 - Pulse sequence: Spin Echo
 - Repetition time (TR):

	Software version	TR [ms]
1.5T	until V2.10	1,500 to 30,000
	V2.20 to V3.1	831 to 20,000
	V3.6 or later	536 to 20,000
3T	until V2.10	1,500 to 30,000
	V2.21 to V2.5	436 to 20,000
	V3.5 or later	290 to 20,000

- Echo time (TE)

- Spin Echo:

	Software version	TE [ms]
1.5T	until V2.10	136, 272
3T	V2.20 or later	34 to 288

- Voxel orientation: Orthogonal, oblique
- Voxel size: Min. 5 × 5 × 5 mm, variable
- Number of Acquisitions (NAQ): Max. 256, variable
- Matrix size
 - 1 and 2 Dimensional:

Software version	Matrix size
until V2.10	1D: 8, 12, 16, 24, 32, 48, 64 2D: 8, 12, 16, 24, 32
V2.20 or later	8, 12, 16, 20, 24, 28, 32

- 3 Dimensional:

	Software version	Matrix size
USA	V2.30 or later	1, 4, 8, 12, 16, 20
Others	V2.21 or later	

- Voxel localization: Setting ROI on the arbitrary MR image
- Prescan
 - Automatic: Transmitter gain control
Local shimming
Center frequency
Water suppression (flip angle optimization)
Receiver gain
Manual shimming (V3.5 or later)
 - Manual: Manual shimming (V3.5 or later)
- Data processing
 - Receiver gain correction: Auto
 - Baseline correction: Auto
(Elimination of residual water)
 - DC offset correction: Auto
 - Filtering: Auto
(Exponential, Gaussian, Lorentzian-to-Gaussian and Convolution Difference filters)
 - Fourier transformation: Auto
 - Frequency correction: Auto

The following processings are also possible with user interface.

 - Phase correction: 0 or first order (automatic or manual)
 - Base line correction: Polynomial fitting
 - Curve fitting
 - Statistical processing: Measurements of peak, area, and area ratio to arbitrary metabolite of interest
 - Scaling: Y-axis (signal intensity),
X-axis (frequency)
- Display
 - Single voxel display
 - Multi-voxel display
 - CSI (Chemical Shift Imaging): Addition, subtraction, and division for 2 metabolites
 - Peak information
 - ROI for reference: ROI display on the locator image
 - Comparing two data simultaneously
- Data management (archive)
 - Hard disk
 - External DVD
- Print to film
 - MR images
 - Spectroscopy data

INSTALLATION CONDITIONS

The power and environmental conditions are the same as for the MRI system.

COMPLIANCE WITH STANDARDS

This application complies with the same standards as the MRI system.

MASS

Unit	Mass (kg)
Multi Voxel MRS Application	Approx. 0.5

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