

ENDOSCOPIC ULTRASOUND CENTER OLYMPUS EU-ME3

CHE Mode / TIC Analysis

GI ONLY

CHE Operations

This function uses the harmonic components from the ultrasound contrast agent for imaging.



1. Press the CHE key.
2. Switching the CHE-P/CHE-R/C-THE mode and adjusting image quality of the CHE mode image.
3. Inject contrast agent for harmonic imaging.
4. Press the GENERAL button at the same time as the injection to start recording. "REC" appears on the monitor display along with the amount of recording time.

* CHE is not displayed when EBUS scope is connected.

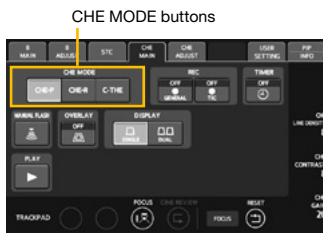
* The movie for TIC analysis must be recorded with the TIC button.

Switching the CHE-P/CHE-R/C-THE mode

CHE-P This mode prioritizes penetration.

CHE-R This mode prioritizes resolution.

C-THE This is THE mode tuned for CHE, which simultaneously images the signal from the biological tissue and the contrast agent.



Adjusting the mechanical index (MI)

MI indicates the degree to which ultrasound can cause mechanical effects. Higher MI increases the brightness of the contrast agent, which in turn increases the depth of penetration, but also increases the mechanical stress, which makes the contrast agent more fragile.

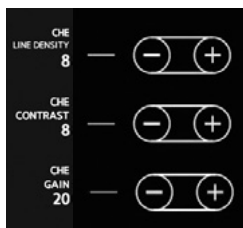
Adjust the MI by pressing either the [+] or [-] key for ACOUSTIC OUTPUT.

Adjusting image quality of the CHE mode image

CHE LINE DENSITY This adjusts the line density of the CHE mode image and the fundamental image.

CHE CONTRAST This adjusts the contrast of the CHE mode image.

CHE GAIN This adjusts the brightness (gain) of the CHE mode image.



Recording/playing back the CHE mode image

GENERAL Movies of ultrasound images are recorded in the internal memory of the Ultrasound Center.

TIC Movies for TIC analysis are recorded in the internal memory of the Ultrasound Center.

* The image adjustment functions are limited during recording of the TIC analysis movie.

1. Press the GENERAL/TIC movie button to start recording.
2. Press the GENERAL/TIC button again to turn off the button display and stop recording.
3. Press the PLAY button to switch the monitor display to the movie playback screen and play back the movie.

MANUAL FLASH button



PLAY GENERAL/TIC movie button

Performing a manual flash

Press the MANUAL FLASH button on the CHE MAIN screen to start sending the high acoustic pressure (flash) and disrupting the contrast agent.

This function displays a time change graph of average brightness values (TIC) for each ROI placed on the ultrasound image.



1. Record a movie for TIC analysis in CHE mode.

*Please refer to the previous page.

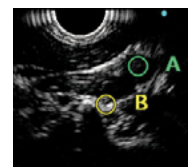
2. Press the DATABASE key and select the movie to use for TIC analysis.

Click the [TIC analysis] button to launch TIC analysis.

3. Set ROI on the ultrasound image.

Swipe the trackpad to move the ROI pointer to the location to perform TIC analysis.

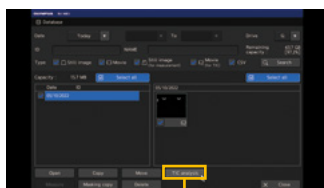
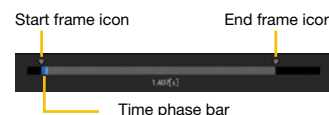
Press the SET key or tap the trackpad to set the location of the ROI.



4. Edit the location, size, shape, and number of ROIs.

5. Select the frames (start and end) for TIC analysis.

Set the analysis range in the frame bar. The area between the start frame icon and the end frame icon is the analysis range.



TIC analysis button

6. Measuring brightness and time on TIC analysis graph

The following measurements can be performed:

Measuring TIC slope

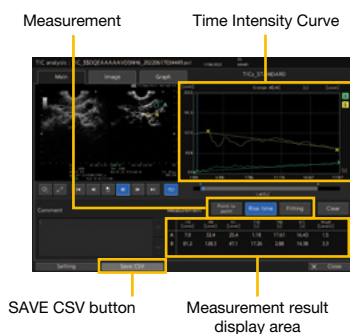
Measure the slope of TIC from the time and brightness of two points (starting and ending points) on the TIC analysis graph. Up to ten systems can be measured at the same time.

Measuring TIC rise time

This measures rise time by detecting the times of 10% and 90% of the maximum TIC.

Fitting TIC

This fits the set range of the TIC with an approximation curve.



SAVE CSV button

Measurement result display area

7. Saving analysis results

Click on the Save CSV button to capture the TIC analysis main screen and save the data in CSV format.

CAUTION

Do not use SWQ while using the contrast agent. If SWQ is required, confirm that microbubbles have sufficiently disappeared first. There is a risk of production of cavitation due to the interaction between the acoustic pressure of ultrasound and the contrast agent, and this may injure the patient's tissue or result in bleeding.

CAUTION

When handling the contrast agent, follow the instructions in the contrast agent's package insert and the instruction manual. Olympus will not assume any liability injuries inflicted on the patients resulting from misuse or inappropriate application of the contrast agent.

Disclaimer

This sheet is for quick reference only. Please refer to the relevant User's Manual(s) for instructions, warnings and cautions. Nothing in this presentation is meant to supersede or replace the instructions for use applicable to each specific device, or the processes and procedures in place at your facility.

As medical knowledge is constantly growing, technical modifications or changes of the product design, product specifications, accessories and service offerings may be required.