Ultrasonix SONIX RP:
Manual for Collecting RF Data

Updated: 10/29/2012
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1 : System Start-Up/Shutdown

Back of Sonix RP

1.1

Apply all the wheel foot brakes. To power the Ultrasonix Sonix RP system, plug the grey power cord, located on the back of the Sonix RP, into a wall power outlet that has no other devices plugged into it.

1.2

To start-up the Sonix RP system, press the power button on the left side of the system. The touch panels and keyboard will light up. At the BIOS screen, choose the Ultrasonix start-up. After start-up, the Windows desktop must appear.

Power button

To shutdown the Sonix RP system, exit the Sonix RP software and then use Shutdown from the Windows Start-Menu.

2 : Starting the Application

2.1

To start the application, double Click the SONIX RP icon.
The icons do not necessarily need to appear to run the Sonix RP. The application can be stared via the Start Menu button, located under Start >> Programs >> SONIX RP >> SONIX RP


Make sure the Sonix RP software loads. If the screen stays on the loading and states "Starting Console"... for more than 10 minutes, close the program and restart the computer.

2.2

After loading you will see the general imaging home screen of the Sonix RP.
The left side of the home screen should say Investigational Use Only. If the Investigational Use Only does not appear, press the Research button on the keyboard. In addition to stating on the screen, the system is in Research/Investigational Mode when the button is lit the color orange.
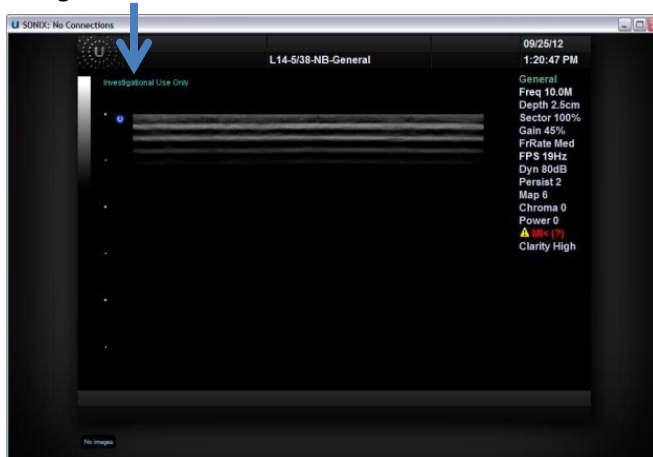
2.3

Provide the data a study name, by pressing the ID button on the keyboard and filling out the field names

# 3 : Setting up the Transducer Probe

Transducer Probe Advisory

The transducer probes cannot be submerged in water below the water mark. If the transducer needs to submerged, use a water protective sleeve, located in cabinets of the Bioeffects Room. Apply ultrasonic coupling gel to the top of the transducer. Put the probe in sleeve & rubber band the sleeve to the probe. **There can be no air bubbles trapped in the gel on the surface of the probe when collecting RF data.** Gently smooth away any sleeve wrinkles and bubbles over the probe.

Front of Sonix RP

Transducer Ports
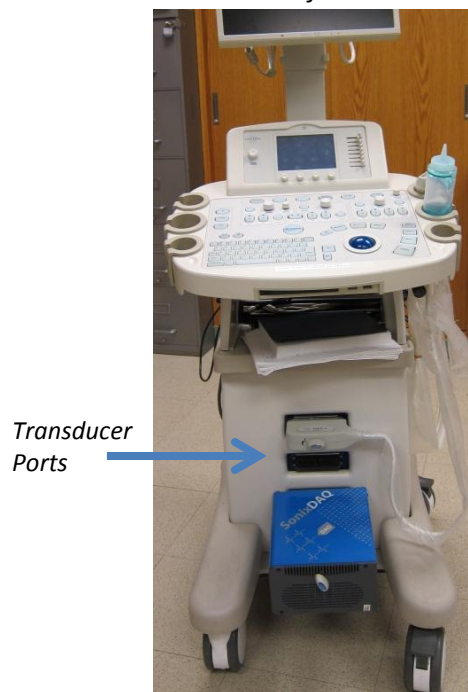
3.1

To un-attach/insert a probe, use the turn key. Once the system is on, any port on the Sonix RP can be activated. Simply press the **Probe** button on the keyboard. Then, on the touch screen tap the name of the probe you want to use.

The Ultrasonix Sonix RP has two phased array probes, the L14-5 and L9-4. The probes can be locked into either of the top two ports. The bottom port is reserved for the DAQ. Probes can be changed at anytime (including when the system is off), except during the transfer of data.

# 4 : RF Acquisition Mode

4.1

To collect RF data, set the acquisition mode of Sonix RP to record RF data & B-Mode images. When starting a new study, the default mode is B-Mode.

Press the **B-MODE** knob once. Its label will turn orange when active.

Position the mouse cursor over the field **Acquire B** until it turns light blue. Turn the **AUDIO VOLUME** knob, until the **Acquire B** changes to state **Acquire B/RF.**
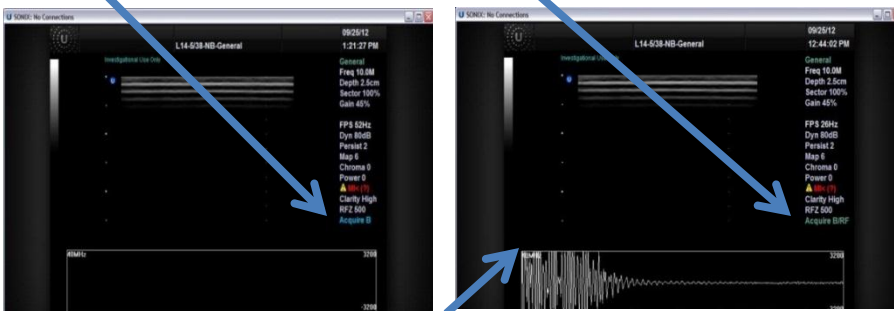
4.2

The top left corner of the RF signal must state the sampling rate as **40 MHz**. If the does, move the cursor over the left side of the screen so that an advanced settings tab will appear on the left side of the screen.

Imaging Parameters

Advanced Tab Field Name
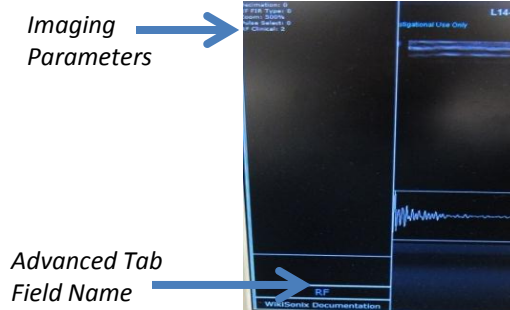
Position the cursor over the advanced tab field name and use the **AUDIO VOLUME** knob to scroll through until **RF** appears. Once it does, move the cursor up to the Imaging Parameters. Using the cursor and **AUDIO VOLUME** knob, set **Mode** to 2 & **Decimation** to 0.

5 : Controlling Acquisition Settings (Basic)

5.1
Press **RESEARCH** (iff not already orange). Press **ID** to assign a name tag to the data. Press **PROBE** to bring up active probe options on the touch screen above the keyboard.

Turn the **B-MODE** knob to adjust the total receive gain. Use **FREQ** to adjust the receive frequency. Use **DEPTH** to adjust the depth of the image; RF data is only collected for the extent of the image that appears on screen.

General
Freq 10.0M
Depth 2.5cm
Sector 100%
Gain 45%

FPS 26Hz
Dyn 80dB
Persist 2
Map 6
Chroma 0
Power 0
⚠ MI< (?)
Clarity High
RFZ 500
Acquire B/RF

5.2
The other keys can be used to change various settings.   The key settings will be displayed together on the right side of the screen.

5.3
In addition to the keyboard, any parameter on the screen can be adjusted by using the cursor and **AUDIO VOLUME** knob as demonstrated in previous section. Once the cursor is positioned over the field name, its name color will turn light blue, signifying it is actively selected. The different options for the parameter are accessed by turning the **AUDIO VOLUME** knob.
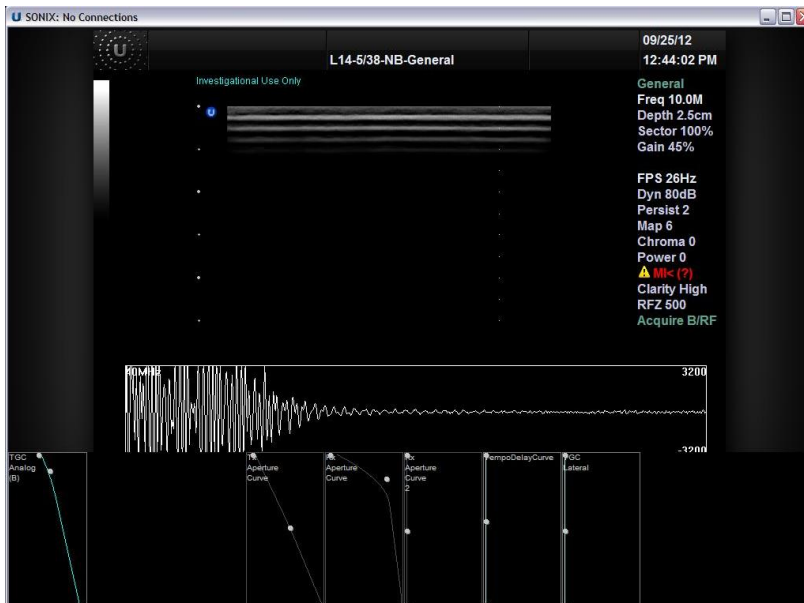
6 : Controlling Acquisition Settings (Advanced)
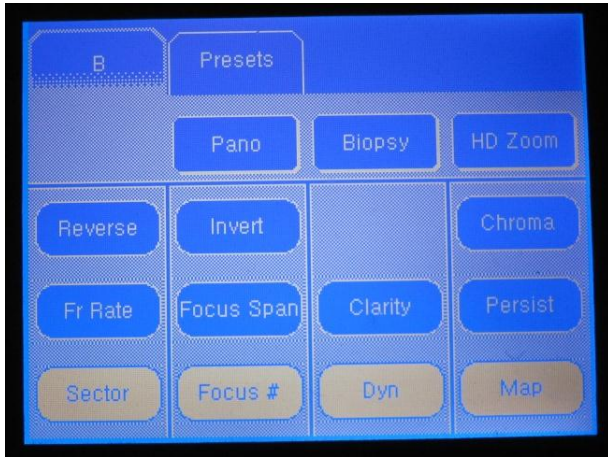
6.1

Under the **B** tab on the touch screen, use the touch buttons and knobs beneath to change advanced B-Mode settings and parameters.
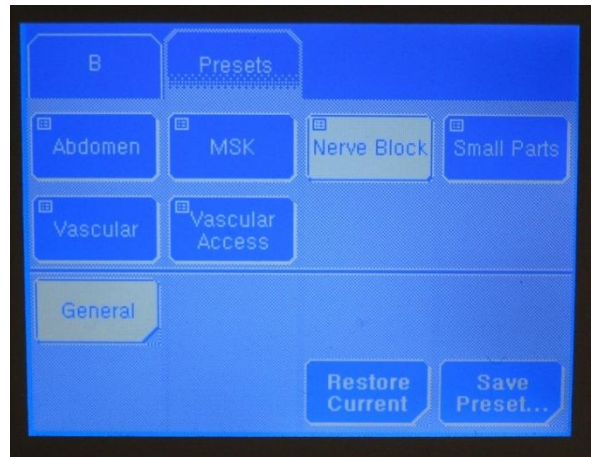
6.2

Under the **Presets** tab on the touch screen, all current configuration settings can be saved or stored configuration settings can be loaded.

6.3

Different advanced settings can be accessed by scrolling the cursor to the left or bottom side of the screen. The Time Gain Compensation (**TGC**) sliders near the keyboard can be disabled by scrolling the cursor to the bottom of the screen and adjusting the TGC bars to be flat.

7 : Collecting RF Data

7.1
Press **FREEZE** once to stop RF collection, the button will turn yellow. Considerable time may have passed since the last frame store, so the finite storage may be filled.


7.2
Press **FREEZE** a second time, it will turn blue. This restarts collection, resets the frame storage, and starts collecting frames. The max # of frames is 64. The amount of time to collect each frame depends on the **Frame Per Second (FPS)** rate
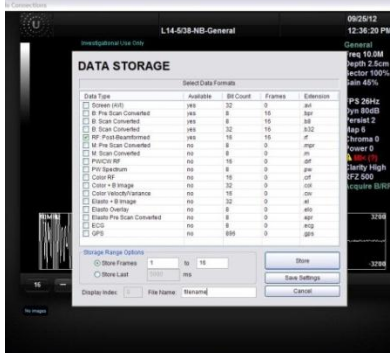

7.3
Depending on the **FPS**, wait a few seconds then press **FREEZE** a third time, it will turn yellow again. The system has stored multiple frames over the time going from step 7.2 to step 7.3 at the FPS rate.
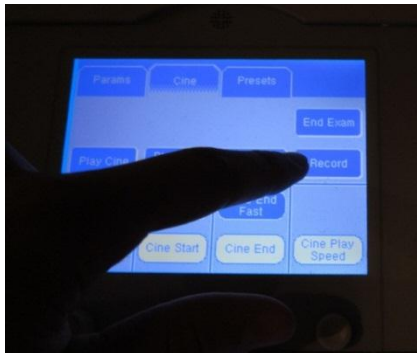
7.4
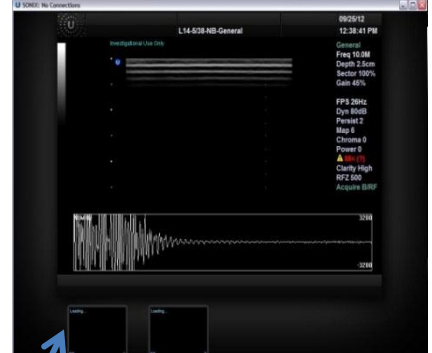Press **Record** on the touch screen to pull up the data storage menu.

7.5
Check store **RF: Post-Beamformed** to save the RF data.

Use the field in **File Name** to name the data.

Saved files are visually confirmed as icons on the bottom of home imaging screen**.**

7.6
Saved data files are located under the path
D:/Patient Info/<id name>

Use the USB ports on the bottom part of the keyboard to transfer to a storage device. If connected to an Ethernet port, data can be sent to the Z:/ Drive, a secure location on the Beckman network.