

Sahara

Test Results

How do the T- and Z-Scores for the Sahara® Clinical Bone Sonometer correlate with the T- and Z-Scores acquired by DXA?

T- and Z-Scores are strongly dependent on the measurement site, and in certain instances also on the measurement technique. For a more detailed summary please refer to the White Paper titled "[The Sahara® Clinical Bone Sonometer: Clinical Use of T- and Z-Scores](#)".

How do I obtain the SOS (Speed of Sound) and BUA (Broadband Ultrasound Attenuation) numbers?

When the Est. BMD results are on the LCD screen, press the +/- key to display the BUA and SOS values. If you then press the print/feed button the internal printer will generate a printout of Est. BMD, QUI/Stiffness, SOS, and BUA measurements.

On some patients, an "*" asterisk appears after the test results. Are my results valid?

An asterisk (*) appearing after patient test results indicates that the estimated BMD and QUI were calculated using the SOS value alone. The estimated BMD and QUI are calculated from the SOS alone in those rare cases where the BUA data is considered unreliable due to the fact that the assumption of a linear attenuation vs. frequency was not fulfilled. This condition is rare, occurring almost entirely in a small percentage of younger males and females with high bone density. On occasion, improper foot positioning or not enough coupling gel may also cause this condition. Therefore, if the measurement has an asterisk, it is recommended that the operator repeat the measurement taking special care to use the Sahara coupling gel and to position the foot using the foot positioner (refer to the User's Guide or the Video that was shipped with the unit for proper technique). If the second measurement does not have an asterisk, it should be used and the first measurement ignored. If the second measurement also has an asterisk, try testing the patient's other foot. If the results continue to have an asterisk, these results should be interpreted with caution, especially if used for patient monitoring.

I received an "Invalid Measurement" or an "Out of Range" message while measuring a patient. What should I do?

Carefully repeat the measurement, being sure to use the appropriate amount of gel and to properly position the patient's foot using the positioning aid (refer to the User's Guide or the instructional video for proper technique). Note also that patients must remove nylons or stockings before the measurement is performed. If the "Invalid Measurement" or "Out of Range" message repeats, run a QC to verify that the machine is working properly. Also, check that the self-test diagnostics pass when the machine is power-cycled by unplugging the unit from the wall outlet, waiting ten seconds then plug the unit back into the wall outlet. Verify that the Sahara unit has been in an environment between 60° to 100° F (15° to 37.7° C) long enough for the machine itself to be within its allowed operating temperature. If no errors occur during the QC and self-test, try testing the patient's other foot. If the unit generates the same message when measuring other patients, contact Hologic Customer Service (800-321-4659). International customers should contact their local Hologic Dealer.

Which foot should I measure?

Several published clinical studies have shown dominant vs. non-dominant does not make any difference but you should always measure the same foot. If a limb has been immobilized due to a fracture, then the other foot should be tested. This is particularly true with hip fractures (old or new). In addition, if there has been a

foot fracture, that foot should not be measured. If the patient's skin, in the area to be tested, is abraded and/or has an open sore, do not measure that heel.

With the Advanced Clinical Software I sometimes get the message "No Reference Data Available". Why?

The Reference Database for Sahara is Caucasian Female. If in the patient's biography a different ethnicity or male sex is chosen a report cannot be generated in the Advanced Clinical Software. You may print out a report for the Est. BMD, QUI, BUA, and SOS from the internal printer of the Sahara unit.

Instrument Operation

Where is the Off switch on the unit?

To conserve energy, the Sahara unit will automatically switch to an energy saving mode by itself after ten minutes, saving the last measurement result in memory. Because of this feature there is no Off switch on the unit. Because of its efficient design, even when on and measuring patients, the Sahara uses very little power. In operation, a Sahara will typically use only 35 Watts on average.

The unit went to energy saving mode before I printed out my last measurement. How can I get the results of the last measurement?

Press the ON button on the Control Panel. After initialization, the last patient's measurement can be seen by pressing the +/- key at the "Gel Pads" screen. When the results are on the screen, pressing the Print/Feed button will print them. Repeatedly pressing the +/- key will scroll you through the results and return you to the "Gel Pads" screen. When power is disconnected the last patient's measurement is lost.

How do I know what version of software my Sahara Bone Sonometer has?

The software version appears on the LCD screen after the unit has been plugged into the wall outlet. You may also obtain the version of software by pressing ON. After initialization press Program, press 5, press <Enter>. Note: You must not be connected to the computer to use the program modes on the clinical unit.

I sometimes get the message "Initialization Failure Press On". What should I do?

Check that you have software version 2.13 or higher on the Sahara Clinical unit. If your unit does not have version 2.13 or higher you should have received a copy of this software and should load it now. After loading the software, run two QC's to verify that everything is fine and the problem is fixed. If you use a computer to operate the Sahara, it is necessary to upgrade the Advanced Clinical Software at the same time you upgrade the Clinical Unit.

Monitoring

Can Sahara be used to monitor patients?

Yes, Sahara can be used for monitoring for patients, however, the heel has not been shown to respond to therapy in the same manner as the hip and spine. Sahara can measure changes in bone mass that might be expected after 2 to 3 years of treatment. As a result, we recommend that axial DXA be used to monitor therapeutic changes to bone mass. For a more detailed summary please refer to the White Paper titled "[Patient Monitoring with Sahara®](#)".

Gel

May I use other types of ultrasound gel?

No. Only SAHARA oil-based gel will give accurate results with the Sahara instrument. Other commercial ultrasound gels have not been optimized for quantitative ultrasound measurements and have been shown to give inaccurate results with Sahara. In particular, water-based gels cause a significant delay in coupling, thus resulting in inaccurate and variable results. In the United States you may order additional Sahara coupling gel by calling 800-321-4659 or Fax 781-280-0672. International customers should contact their local Hologic Dealer.

How many measurements will I get from a tube of Sahara gel?

You should obtain between forty to fifty measurements per tube.

Why is the consistency of my gel runny?

The operating temperature of both the Sahara Gel and the Sahara unit are between 60° to 100° F (15° to 37.7° C). This means that the material itself must be between these temperatures. The gel will return to the proper consistency when it cools down to the proper operating temperature.

Quality Control (QC)

I did a QC and the LCD reads "Repeat QC in 1 hour." Why?

This message will occur if the phantom and the Sahara unit are not at the same temperature or sometimes when the phantom is measured without gel. The phantom can be at a different temperature than the machine if it is not left on the machine, or is left on the unit's power supply, in the sun, or next to a heat source like a radiator. Also, if both machine and phantom have recently been moved to a place with a very different temperature, one may change its temperature slightly faster than the other. If this is the case, you may measure patients and do the QC one hour later.

I did a QC and the LCD reads "QC Failed." What should I do?

Do not examine patients or calibrate your machine. This message may indicate that you need to contact Hologic Service. First ensure that you have properly performed the QC and that the phantom has been stored on the machine for at least the last four hours in an environment which has not been outside of 60° to 100° F (15° to 37.7° C). Unplug the unit from the wall outlet wait ten seconds then plug the unit back into the wall outlet. Watch to see if the unit passes its self-test or whether any errors are displayed. If errors are displayed, contact your Hologic Service representative. If there are no errors and the Self-Test Passes, repeat the QC being careful to follow the procedure as outlined in the Sahara User's Guide. In particular be sure to use Sahara coupling gel. If the QC again fails, print out the QC report by pressing the Print/Feed button. Press On. After initialization Press Program, press 4, press 2, press <Enter>, press 9, press 3, press <Enter>. The Exception Report will print. Then at the "Gel Pads Press Open" Screen, Press Program, Press 4, Press 2, Press <Enter>. Press 9, Press 6, Press <Enter>. The Flash Report will print. These three reports contain diagnostic information pertaining to the Sahara unit. Contact your Hologic Service representative and you will be asked for the results of these three printouts. International customers should contact their local Hologic Dealer. Your Hologic representative will instruct you further.

Printer

How often should I perform Quality Control (QC) using the phantom?

The Quality Control should be run daily before examining patients. Please note that the phantom should be stored on the unit, but not in the foot well. The phantom must be at the same temperature as the unit.

I just reloaded the paper in the internal printer and now the printer does not print. How do I fix this?

For thermal printers, only one side of the paper can be printed on. The paper in your instrument may be loaded in upside-down. The "SAHARA" side of the paper is the print side. Reload the paper referring to the [section on loading paper](#) in the Sahara User's Guide or the diagram in the printer paper well.

How do I fix a printer jam on the internal thermal printer?

First, press the +/- key, and write down all your Sahara results so that you do not lose them (you can obtain the SOS and BUA results by pressing the +/- key again). Remove the paper cover by pushing up with your thumb on the cut out on the cover. Try finding the end of the paper and pulling the paper out in the normal feed direction to clear the jam. If you cannot pull the paper out in this direction, use scissors to cut the paper free from the paper roll and try pulling the paper out in the reverse direction. If this does not work, unplug the unit from the wall outlet wait ten seconds the plug the unit back into the wall outlet. At the "Gel Pads" screen, press the print feed button in an attempt to feed the end you have cut free from the paper roll through the mechanism. While the printer mechanism is feeding the paper, pull on the paper in the same direction as the printer feed to help clear the jam. Never use excessive force, as this might damage the printer.

What do I do when "DAQ LATCHUP" appears on the LCD when I apply power to my Sahara?

"Latch up" errors typically occur when the power supply is plugged in before the connection is made at the instrument. It is important that the five-pin locking connector between the power supply and the Sahara instrument be connected before the power supply is connected to the power from the electrical outlet on the wall. When this error occurs, you should unplug the unit from the wall outlet, wait ten seconds, and then plug the unit back into the wall outlet.

Transducer Pads

How do I know when to replace my transducer pads?

Transducer pads need replacement if damaged, torn, cut, or if the display reads "Replace Pads, Press ON." This message, which is generated after performing QC or when the "Xducer Pads Aging" message is displayed, occurs when the pads require replacement due to normal wear and tear. When this message first occurs, order the new pads and install them according to the instructions in the User's Guide. Always replace the transducer pads in pairs

I sometimes get the message "Clean Pads Press ON" while trying to initialize the unit. Why?

During initialization (while the pads are touching before the patient puts their foot in), the transducer pads must be clean and dry. Clean off any gel on the tips of the pads that press together. Put the gel on the transducer pads after initialization, when the LCD screen reads "Gel Pads, Press Open". If this message is displayed when the pads are clean, replace the transducer pads with new pads. Instructions on Pad Replacement is found in the Clinical Users Guide.

Error Messages

While attempting to display or print a patient report in the Advanced Clinical Software, I get an "Internal Application Error" or "Out of memory Error" or my Sahara application crashes.

Hologic and other vendors that supply software have found that these problems can occur due to problems with Hewlett Packard (HP) printer drivers. These printer drivers come with your printer or on your Windows 95 installation CD and are not under Hologic's control. You may see the problems listed above if you are using any of the following printers:

- ▶ HP DeskJet 660C
- ▶ DeskJet 670C
- ▶ DeskJet 672C
- ▶ DeskJet 680C
- ▶ DeskJet 690C
- ▶ DeskJet 694C
- ▶ DeskJet 820
- ▶ DeskJet 820C
- ▶ DeskJet 820CSe
- ▶ DeskJet 870CSe
- ▶ DeskJet 870Cxi
- ▶ DeskJet 890C
- ▶ DeskJet 6P

Note that the problem may occur even if you just view the report on your monitor without actually printing it. If you are using one of the above printers and observe these problems, try the following:

- 1) Download the latest printer driver for the printer in question from the [HP website](#). The latest driver may improve the situation.
- 2) If you are using one of the above DeskJet printers, install and use the DeskJet 550C (universal) printer driver that comes with Windows 95/98. This should resolve the problem. If asked to insert the Windows 95/98 CD while adding the new printer, be very careful to use the Win95/98 disk that came with your PC. You can potentially cause serious harm to your system if you mix up Win95/98 versions. As a safety precaution, you should back up your Sahara database prior to installing the new driver. The DeskJet 550C (universal) printer driver will not work with the HP 720 and HP 820 series printers and HP has not yet provided a satisfactory solution for these printers. Therefore, Hologic does not recommend use of the HP 720 and 820 DeskJet printers with the Sahara Advanced Clinical Software at this time.

When using the Advanced Clinical Software, the Sahara will not "communicate" with the computer. Why?

The software for both instruments, Clinical and the computer with Advanced Clinical, must be at revision level V2.11 or higher for each. Note: They do not need to be the same version, as long as the numbers before the decimal point agree. For example, Clinical V2.13 works with Advanced Clinical V2.11, since both are 2.XX. You should also check that your serial cable is firmly connected at both the computer and the Sahara unit. After experiencing this error, you need to close the Sahara program and cycle the power on the Clinical unit. Then re-start the Advanced Clinical program again.

Reimbursement/CPT Code

Are Sahara tests reimbursed by Medicare and private carriers?

Sahara tests have been reimbursed by Medicare since July 1, 1998. The recent assignment of a CPT code will facilitate reimbursement by private carriers. Medicare will reimburse for Sahara tests provided the individual tested meets one of the following criteria:

1. Estrogen-deficient women at clinical risk for osteoporosis.
2. Individuals with vertebral abnormalities.
3. Individuals receiving long-term glucocorticoid steroid therapy.
4. Individuals with primary hyperthyroidism.
5. Individuals being monitored to assess the response to or efficacy of an approved osteoporosis drug therapy.

What is the CPT Code for Sahara tests?

Effective January 1, 1999, the CPT code for Sahara testing is 76977 (Ultrasound Bone Density measurement and interpretation, peripheral site(s), any method). The USA national average reimbursement rate for this CPT code is \$42.37.