

INSTRUCTIONS FOR USING THE VARIABLE COMPOSITION PHANTOM (VCP) FROM TUFTS UNIVERSITY

Contact for Questions

Should you have any questions, please contact:

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Description

The phantom consists of a stack of rectangular plastic layers 8 inches (20.3cm) by 11 inches (24.8cm) and about 5 ¼ inches (13.3cm) thick. There are three different kinds of plastic used in different combinations to simulate different soft tissue compositions.

The phantom is scanned as a *total body*, using the aluminum head to simulate a skull. The head provides the scanner software with an anatomic landmark. Three different configurations are recommended to provide a clinically appropriate range for instrument assessment.

Assembling the Phantom

Leave the pad on the table while scanning the VCP so that patient scanning conditions are simulated. Assembling instructions are slightly different for Lunar users as they are for Hologic users. Please see the appropriate section for your DXA scanner.

Lunar Assemble

Center the phantom head at the end of the table, about 1 inch (2.5cm) from the start line. Stack the four clear Acrylic blocks (A1, A2, A3, and A4) on top of one another on the table, touching the flat edge of the aluminum head, as shown in Figure 1 below. Be sure to position the block horizontally as shown with A4 on the bottom and A1 on the top.

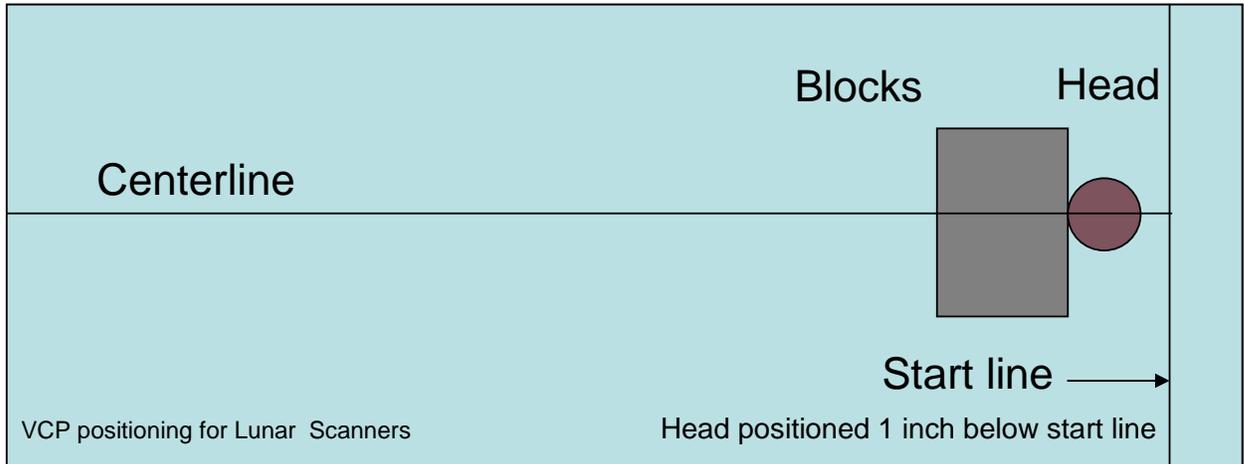


Figure 1

A = Start line, B = Stack of blocks, C = Centerline, D = Phantom head

Hologic Assemble

Center the phantom in the middle of the table, with the head separated from the block by at least 3 inches. Stack the four clear Acrylic blocks (A1, A2, A3, and A4) 3 inches (7.5 cm) below the aluminum head as shown in Figure 2 below. Be sure to position the blocks horizontally as shown with A4 on the bottom and A1 on the top.

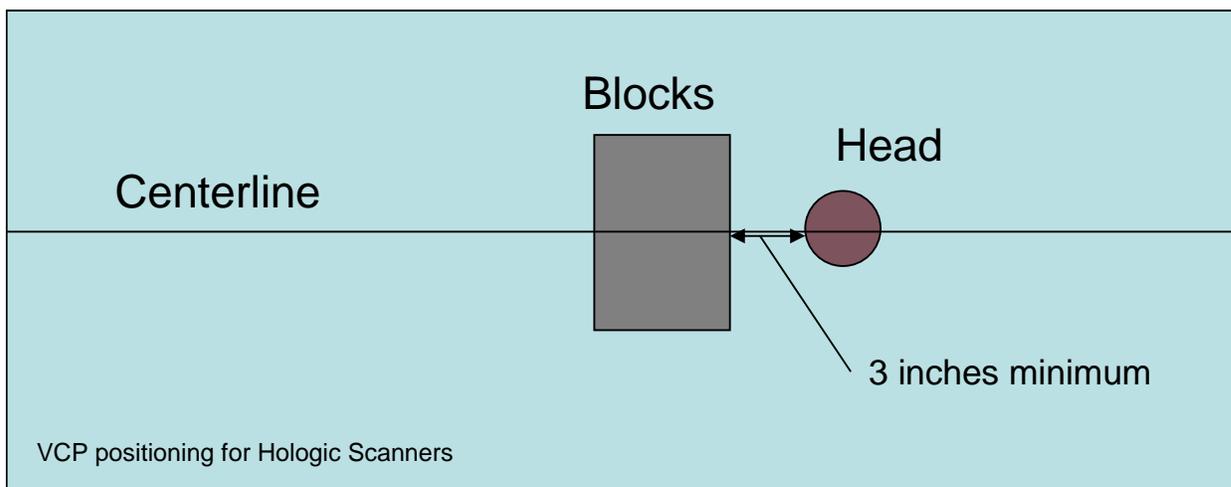


Figure 2

A = Stack of blocks, B = Centerline, C = Phantom head

IMPORTANT:

Please ensure that the phantom is positioned squarely on the bed. Use a square object for alignment if necessary. If the phantom appears to be tilted in the scan image, stop the scan and start again. Also, when adding additional sheets be careful not to twist the sheets already in place.

Scanning the Phantom for Lunar Users

Enter patient biographical information on the *Mandatory Information* screen as follows:

First Name: STUDY NAME (site #)

Last Name: VCP-____

Birth Date: Enter today's date minus 40 years (ex: if today's date is April 15, 2001, then the DOB should be entered as April 15, 1961).

Height: 67 inches (170 cm)

Weight: 154 pounds (63 kg)

Sex: Enter "M"

Ethnic: White

Assemble the phantom as directed and scan it **four** times in **each** configuration (see Assembling Fat Configurations) following the manufacturer's instructions for acquiring a total body scan. It is recommended that the Medium 150 λ A setting be used. The scanner will automatically stop once it has scanned the phantom.

Scanning the Phantom for Hologic Users

Enter the patient biographical information on the *Mandatory Information* screen as follows:

First Name: STUDY NAME (site #)

Last Name: VCP-____

Birth Date: Enter today's date minus 40 years (ex: if today's date is April 15, 2001, then the DOB should be entered as April 15, 1961).

Sex: Enter "M"

Height: 67 inches (170 cm)

Weight: 154 pounds (63 kg)

Ethnic: White

Assemble the phantom as directed and scan it **four** times in **each** configuration (see Assembling Fat Configurations), following the manufacturer's instructions for acquiring a whole body (body composition) scan.

*****QDR 4500-series users** should use a scan length of 24" inches (46 cm).

*****QDR 1000/W and 2000** users need to include the tissue calibration bar in the scan window and should use an appropriate scan length.

*****If you encounter a problem with reducing the scan field, scan the entire table length as is done in a normal whole body scan.**

Assembling Fat Configurations

The sequence for assembling the recommended configurations is as follows and applies to all DXA manufactures. **It is required to do four scans of each of these configurations so that the results may be averaged.**

Configuration A (High Fat)

To simulate High Fat Percentage, place the gray sheet labeled “G1” on top of the Acrylic stack (4 blocks). Scan this configuration 4 times and save onto a diskette labeled “Configuration A1”, “Configuration A2”, “Configuration A3,” and “Configuration A4”.

Configuration B (Medium Fat)

To simulate Medium Fat Percentage, add the gray sheet “G2” and the White Sheet labeled “W” to the existing stack. The stack in configuration B contains the 4 Acrylic blocks, two gray sheets (G1 and G2) and one white sheet (W). The order of the sheets in the stack is not important, but the correct sheets (according to their labels) must be used. Scan this configuration 4 times and save onto a second diskette labeled “Configuration B1”, “Configuration B2”, “Configuration B3,” and “Configuration B4”.

Configuration C (Low Fat)

To simulate Low Fat Percentage, add the remaining gray sheet (“G3”) to the existing stack. The stack in configuration C contains the four Acrylic blocks, and three gray sheets and one white sheet. Scan this configuration 4 times and save to a diskette labeled “Configuration C1”, “Configuration C2”, “Configuration C3,” and “Configuration C4” onto a third diskette.

Submission of VCP-___ Phantom Data

All together there should be a total of **12** scans performed (4 at each configuration). Each configuration should have been saved to a diskette (three diskettes total with 4 scans on each one). Verify that all scans are saved to the diskettes and that the diskettes are properly labeled with the scan information.

Analysis is not necessary.

DO NOT SHIP THE PHANTOM BACK TO TUFTS unless you are instructed to do so.

Send **ONLY** the 3 diskettes and the completed VCP-___ Data Form back to Tufts for analysis just as if it were patient information. Once the analysis has been deemed successful, Tufts will contact you and provide shipping instructions to forward the phantom to the next scheduled site.

Please be certain that ALL materials are returned to the shipping case:

4 Acrylic Blocks

4 Plastic Sheets

1 Metal Head

Complete Instructions

Copies of Data Form