

# RESEARCH SCAN

The Research Scan software quantifies bone mineral in any user-defined region of a patient or subject anywhere within the scanner's active scanning area. The subject of a Research scan could be human, animal, or an inanimate object. The Research Scan is typically used for animal scans, anything from excised bones to whole body large rats to implants.

The Research scan consists of a Measurement scan over an area defined by the operator. An optional Scout scan is available to assist the operator in defining the scan region. Analysis is performed on the scan data using operator-defined regions of interest and numeric results are calculated and displayed.

The operator has the capability of adjusting the start and end points of the Scout and Measurement scans. Other adjustable parameters are the scan speed, scan resolution, and scan width.

**This supplement is to be used in conjunction with the XR Series or Excell Operator's Guide.**

## TABLE OF CONTENTS

# RESEARCH SCAN

<b>Detailed Scan Specifications</b>	<b>- 1</b>
Patient Dose	2
Operator Dose	2
<b>Maintaining High Quality Research Scans</b>	<b>- 3</b>
<b>Scan Parameters</b>	<b>- 4</b>
Setting Scan Defaults	4
<b>Quick Reference Instructions</b>	<b>- 7</b>
General Cautions	8
<b>Performing Research Scan</b>	<b>- 9</b>
Scanner Preparation (New Patient/New Subject)	9
Scanner Preparation (Existing Patient/Subject)	11
Patient/Subject Positioning	13
Scan Procedure	14
<i>Performing Scout Scan</i>	15
<i>Performing Measurement Scan</i>	16
<i>Analysis</i>	18
<b>Results</b>	<b>- 19</b>
<b>Comparison Image</b>	<b>- 21</b>
<b>Reanalyzing Scan Data</b>	<b>- 22</b>
<b>Analyzing Saved Scan Data</b>	<b>- 23</b>
<b>Scout Scan Progress Screen Options</b>	<b>- 24</b>

## Detailed Scan Specifications

Detailed specifications for the Research scan are in the following tables.

Research Scan Specifications	
Scan Site	Any operator-defined region within the scanner Active Scanning Window
Scan Speed	1.0 mm/sec to 260 mm/sec
Scan Width	2 x selected pixel size up to maximum scan width
Scan Length	2 x selected pixel size up to maximum scan length
Spatial Resolution	See table below

### Spatial Resolution

Point Resolution x Line Spacing		
Scout Scan	1.0 x 1.0 mm	1.5 x 1.5 mm
	1.0 x 2.0 mm	3.0 x 3.0 mm
	1.0 x 3.0 mm	6.0 x 6.0 mm
Measurement Scan	0.5 x 0.5 mm	3.0 x 3.0 mm
	1.0 x 1.0 mm	6.0 x 6.0 mm
	1.5 x 1.5 mm	

Default Histogram Averaging Width is 0.125 g/cm <sup>2</sup> .
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\*\*\* All specifications are subject to change without notice. \*\*\*

## Patient Dose



The radiation dose to the subject is dependent on the resolution, filtration, and the scan speed used. Dose values listed below are based on the default scan parameters.

Scout Scan Skin Entrance Dose (mRems)  
(60mm/sec at 3.0mm x 3.0mm resolution)

Subject Thickness (cm)	Entrance Dose
0-3	0.04
>3-6	0.06
>6-9	0.09
>9-12	0.12

Measurement Scan Skin Entrance Dose (mremS)  
(60mm/sec at 1.0mm x 1.0mm resolution)

Subject Thickness (cm)	Entrance Dose
0-3	0.13
>3-6	0.18
>6-9	0.27
>9-12	0.33

**NOTE:** These dose values apply for Rev. 3.9.5 Host software. Dose values could be different for other software revisions because of scan speed and/or resolution differences. For more details, call Norland Customer Service at 800-444-8456 or 1-920-563-8456.

## Operator Dose



The dose to the operator is negligible. During a scan, the radiation level at a distance of one meter from the scanner table is less than 0.1 millirems per hour.

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## **Maintaining High Quality Research Scans**

Variations in subject and positioning, scan and analysis techniques can influence the precision and accuracy of Bone Density estimations. Facilities can reduce the adverse effects of some of these factors by:

- Performing and monitoring the daily QA procedure to verify that other radiation sources (X-ray machines, nuclear imagers) are not affecting the performance of the Norland Bone Densitometer.
- Ensuring that all operators position patients/subjects and analyze data in the same manner.
- Screening patients/subjects for recent radionuclide uptake procedures. Residual emission may be misinterpreted by Norland Bone Densitometers as x-rays.
- Screening patients for recent ingestion of radiopaque substances. Barium or other dyes used in some x-ray procedures could result in increased soft tissue x-ray absorption.
- Screening patients/subjects for prosthetic devices, implants, surgical staples, or other high density sub-dermal materials that may affect bone density estimates.
- Ensuring that non-human subjects contain no metal objects or other high density objects that might affect bone density estimations.
- Ensuring that scan and analysis parameters remain constant for all scans of the same patient or subject.

## Scan Parameters

Prior to starting a Research study, the scan parameters should be defined. Scan parameters can also be edited at the Scan Review screen during a particular scan. The desired precision and detail of a Research scan, the scan length, and the time to scan completion, influence the scan parameter selections.

In order to maintain precision and accuracy, always use the same scan parameters for serial scans.

### Setting Scan Defaults

1. Select *Main Menu* item **Setup** and click on **Scanning**.
2. Select "Research" at the Scan Type Selection screen. The following screen will display.

FIGURE 1

The screenshot displays the 'RESEARCH SCAN SETUP' screen with the following parameters and controls:

	Scout	Measure	
Resolution:	3.0 x 3.0	1.0 x 1.0	nm
Scan Width:	13.00	10.00	cm
Scan Length:	As Marked	As Marked	cm
Scan Speed:	60.0	60.0	nm/sec

Scout Resolution:

1.0 x 1.0   1.0 x 2.0   1.0 x 3.0   1.5 x 1.5   **3.0 x 3.0**   6.0 x 6.0

Measure Resolution:

0.5 x 0.5   **1.0 x 1.0**   1.5 x 1.5   3.0 x 3.0   6.0 x 6.0

Scan Type Name: Research

Scout Scan: ☒ Enable ☐ Disable

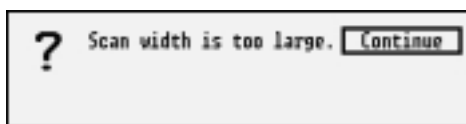
Force Initial scan on-axis: ☒ Enable ☐ Disable

Maximum degrees to snap final scan on-axis: 15

Select desired parameters and click on **[Accept Changes]** to set as default.

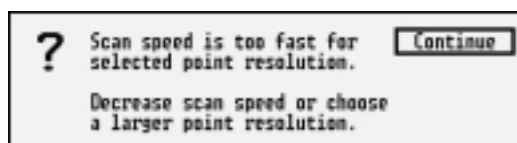
- See Parameter Selection table (see page 8) for description of options.

- If the following error message displays, click on **[Continue]** and adjust the parameters as necessary.



**NOTE:** Scan width can be up to 255 data points. The defined scan window is outside the scan limits of the scanner.

- If the following error message displays, click on **[Continue]** and adjust the parameters as necessary.



**NOTE:** The system is unable to collect data at selected speed and selected resolution, therefore it is necessary to compromise between the two.

## Scan Parameter Options Description

Scan Resolution	values refer to point resolution (pixel size) x line spacing
Scan Width	entered in centimeters Min. for Scout & Meas. is 2 x point resolution Max. for Scout & Meas. is 255 x point resolution
Scan Length	defined by start & end points marked by operator Min. for Scout & Meas. is 5 lines Max. for Scout & Meas. is 255 lines
Scan Speed	entered in mm/sec Min. for Scout & Meas. is 1.0 mm/sec Max. for Scout & Meas. is 260.0 mm/sec
Scan Type Name	operator-defined; default is "Research"
Scout Scan	when enabled, provides image to assist in defining Measurement scan region
Force Initial scan on-axis	forces end point of initial scan to be on same Y axis as the start point
Maximum degrees to snap final scan on-axis	This field defines the maximum degree of rotation of the cursor box at the scan progress screen (following a scout scan) that will result in an on-axis scan. On-axis scans are faster than off-axis scans. <sup>a</sup>

a. Rotation of the cursor box to an angle greater than or equal to the **Maximum degrees** setting will result in scan data collection at that angle. Rotation of the cursor box to an angle less than the **Maximum degrees** setting will result in an on-axis scan.

- On-axis scans are scans taken with the start and end points on the same y-axis.
- If the **Maximum degrees to snap final scan on-axis** is set to 15, then **Force on Axis** will correct scout view display for scout scans that are up to 15 degrees off axis.



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## Quick Reference Instructions

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Research Scan software quantifies bone mineral in any specially-defined region of a patient or subject anywhere within the scanner's active scanning area.

- Set 'Scanning' and 'Analysis' parameters using **Setup**.
- Click on Scan New/Existing Patient and select Research.
- Enter/Update patient/subject information.
- Screen patient/subject for contraindications.
- Position the patient/subject on the table.



### **CAUTION the patient not to stare into the beam.**

- Turn laser on and position the laser dot above the top of the center of the desired scan region and press the MARK button on Scanner Control Panel to set scan start point.
- Position the laser dot below the desired scan region press the MARK button to set the scan end point.
- Position the laser dot over a point of maximum soft tissue (no bone) and press the MARK button on Control Panel to set the baseline point.

*For objects which contain no soft tissue, take baseline point in table adjacent to object.*

- At the Scan Review screen, click on **[Start Scan]**.

*Adjust parameters such as speed and resolution by clicking on **[Change Parameters]**.*

- When the scan is finished, click on **[Analyze]** (if Scout was disabled).

*With Scout enabled, click on **[Measure]** and define region of interest. Click on **[Start Scan]** to begin Measurement scan.*

- Click on **[Analyze]** and define regions of interest with **Special Regions** option.
- Click on **[Results]** to display currently selected Results Page.
- Enter comments with "Edit Comments", if desired.
- Click on **[Continue - Print]** to print the Analysis Results Report. The system software automatically saves the scan data file to default storage and returns to the *Main Menu* when report printing has been initiated.



## General Cautions

**Caution** - Properly Mark the patient/subject. To ensure scanner arm does not contact the patient/subject, always verify patient/subject is positioned properly before scanning or moving the scanner arm.

**Caution** - Do not move the patient/subject while marking the regions to be scanned. Always remain near the patient/subject, in the event assistance is needed.

**Caution** - Do not reach around to the back of the unit while the scanner arm is moving. While guards are provided, it is wise to avoid any chance of pinching the arm, hand, or fingers between the scanner arm and the frame, or between the source and the scanner arm.

**Caution** - Make certain the patient does not dangle their arm or hand over the riser while the scanner arm is moving during a scan. The scan will not be usable, as the patient will not be properly positioned, and the patient may be at risk of pinching their hand or finger between the scanner arm and the riser or between the x-ray source and the scanner arm.

**Caution** - Make certain the patient does not stick a finger into the slot in the bottom of the upper arm cover during a scan; it could be pinched.

**Caution** - When positioning the patient, ensure they start by sitting near the center of the table and then swing their legs up. Sitting at either end makes positioning awkward.

**Caution** - Do not remove the screws holding the table top during normal use. If the screws are not in place, the table top may tip up if the patient sits on either end. If the screws were not replaced (i.e. after service) and the table top slid forward several inches, it may tip.

**Caution** - Caution the patient to remain still during the scan to ensure quality results.

**Caution** - Help the patient up from the scanner after scan data collection; some patients/subjects may require a few minutes to regain equilibrium after lying down for a length of time.

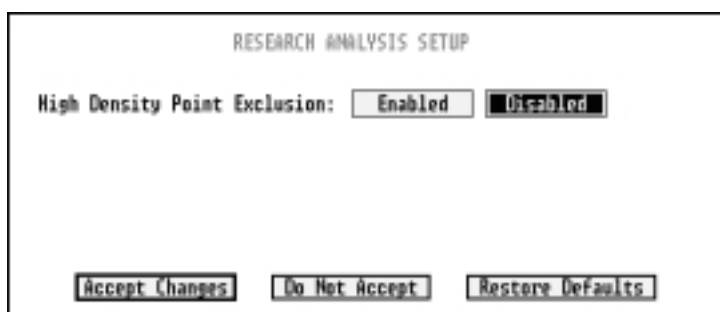
## Performing Research Scan

When performing a Research scan on a human patient, the patient should wear light cotton clothing, free of metal or high density objects. An examination gown may be more suitable. All jewelry in the scan area should also be removed. Other subjects should be checked for any metal or high-density objects in the ROI that would affect bone density estimations.

### Scanner Preparation (New Patient/New Subject)

The system software is equipped with a feature that will exclude high density objects from the analysis. This feature is normally disabled.

1. Determine if the patient/subject has any sub-dermal metal or high-density objects (such as implants, surgical staples, pins, etc.). These objects may affect the results of the scan.
2. To enable High Density Point as the system's default setting, select *Main Menu* item **Setup** and click on **Analysis**. Select **Research** and the following screen should display.



- High Density Point Exclusion will exclude data points with a density  $>3.75 \text{ g/cm}^2$  from the analysis.
3. Click on **[Enabled]** and then click on **[Accept Changes]**. The system will return to the Main Menu.
    - High Density Point Exclusion is set as the system's default setting.



**Remember to disable High Density Point exclusion at the completion of the scan.**

4. Select *Main Menu* item **Setup** and click on **Scanning**. Select the desired scan parameters (see page 6) and enter the Scan Type Name.
5. Click on **[Accept Changes]**. The system will return to the Main Menu.

6. Click on the **Scan New Patient** shortcut from the Main Menu. The PATIENT PERSONAL DATA screen will display.

7. Enter personal information and click on **[Continue]**. The "Name" and "ID" entries are mandatory for scanning.
  - Name should be (last name), (first name).
  - ID Number must be unique to be accepted. If the entered number is already in use, a message will display indicating that the number is already in use.  
For example: (Study numbers/animal ID's)
  - Enter only the patient's self-reported ethnic background (human patients).
  - Pressing **[Enter]** or **[Tab]** will move cursor through fields.
8. At the SCAN TYPE screen, click on "Research" and click on **[Continue]**.
9. Enter the patient/subject's vital statistics and click on **[Continue]**.

- Use consistent units of measurement for the height and weight fields.
  - This information will be updated for each successive scan of the patient/subject and will not affect scan results.
  - This information is not used in measurement estimation calculations.
  - Pressing **[Enter]** or **[Tab]** will move cursor through fields.
10. Proceed to Patient/Subject Positioning to prepare the patient/subject for scanning.

## Scanner Preparation (Existing Patient/Subject)

1. To enable High Density Point as the system's default setting, select *Main Menu* item **Setup** and click on **Analysis**. Select **Research** and the following screen should display.

RESEARCH ANALYSIS SETUP

High Density Point Exclusion:

- High Density Point Exclusion will exclude data points with a density  $>3.75 \text{ g/cm}^2$  from the analysis.
2. Click on **[Enabled]** and then click on **[Accept Changes]**. The system will return to the Main Menu.
    - High Density Point Exclusion is set as the system's default setting.



**Remember to disable High Density Point exclusion at the completion of the scan.**

3. Select *Main Menu* item **Setup** and click on **Scanning**. Select the scan parameters that were used in the patient's (subject's) previous scans and click on **[Accept Changes]**. The system will return to the Main Menu.
4. Click on the **Scan Existing Patient** shortcut from the Main Menu. The patient list will display.

FIGURE 2

NAME	ID
Doe, Jane	12347
Doe, Janet	12346
Doe, Janine	12348
Doe, Janna	12349

None PgUp +

End PgDn +

Search by Name

Search by ID

Continue Cancel

- Click on Page Up or Page Down to display the next group or use the arrow buttons to scroll.
- A search may be done by patient/subject ID number or name. Enter appropriate information and click on **[Continue]**; partial information can be used. For example, entering 'D' when searching by name will show scan list and highlight first name that starts with 'D', allowing user to fine tune search for patient/subject's name.

FIGURE 3

5. Click on patient/subject name and click on **[Continue]**. (Or double-click on patient/subject name.)
6. At the SCAN TYPE screen, click on "Research" and click on **[Continue]**.
7. Update the patient/subject's vital statistics and click on **[Continue]**.
  - Use consistent units of measurement for the height and weight fields.
  - This information will be updated for each successive scan of the patient/subject and will not affect scan results.
  - This information is not used in measurement estimation calculations.
  - Pressing **[Enter]** or **[Tab]** will move cursor through fields.
8. Proceed to Patient/Subject Positioning to prepare the patient/subject for scanning.

## Patient/Subject Positioning

Subject positioning is important in serial studies for consistent orientation of the scan area. Therefore, replicate the initial subject positioning on all subsequent scans of the subject.

**NOTE: To produce the highest accuracy, the entire intended Research scan area must lie within the scanner's active scan area.**

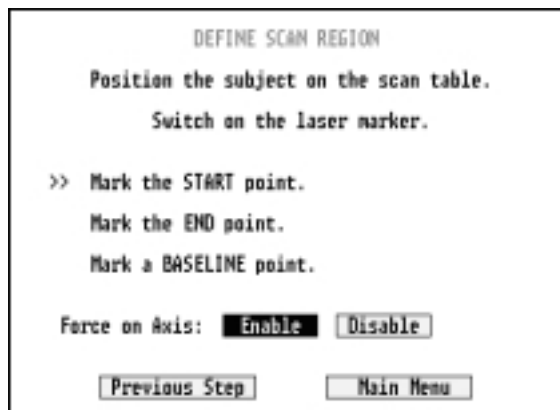
1. Using the Scanner Control Panel, position the Scanner Arm at the foot of the table.
2. Position the patient or subject as desired.
  - Make living subjects as comfortable as possible since movement during the scan will affect the results. The use of a sheet or light blanket will not interfere with scan results.
  - If objects/animals are placed over any material introduced into the scan area, ensure that the material does not attenuate the beam or impact scan results.

Proceed to Scan Procedure.

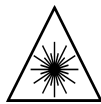
## Scan Procedure

The DEFINE SCAN REGION screen should be displayed on the computer. (See Figure 4)

FIGURE 4



- The **[Previous Step]** command will return to the previous step.



### **CAUTION the patient to not stare into the beam.**

1. Turn on the laser and move the scanner arm until laser dot is approximately 1 cm above the top center of the desired scan region.
2. Press the MARK button on the Scanner Control Panel. The computer will issue a beep and the laser will flash off briefly, indicating acknowledgement of the scan start point.
3. The DEFINE SCAN REGION screen will request that the end scan point be identified. Position the scanner arm so that laser dot is 1 cm below the bottom center of the desired scan region and press the MARK button on the Scanner Control Panel.
4. Position the scanner arm so that the laser dot is over a point (within the start and end points) of maximum soft tissue (no bone) and press the MARK button.
  - For objects which contain no soft tissue, take baseline point in table adjacent to object.

The length of the scan area is now defined.

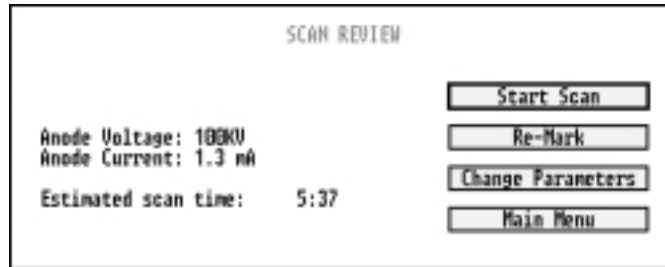
- If the Scout scan was enabled, these points would be the start and end of the Scout; the Measurement scan may be defined by the operator at the Current Scan Progress screen upon completion of the Scout scan.
- If the Scout scan was disabled, these would be the start and end points of the Measurement scan.



Once the start, end, and baseline points have been marked, the **SCAN REVIEW** screen will be displayed on the screen. (See Figure 5)

- Scan times are dependent on scan parameter selection.

FIGURE 5



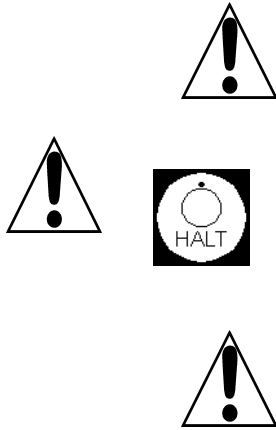
The operator can:

- Click on **[Re-Mark]** to re-mark start, end, and baseline points.
  - Click on **[Change Parameters]** to edit any of the scan parameters (scan speed, scan resolution, number of scans, etc.).
  - Click on **[Main Menu]** to cancel the scan and return to the Main Menu.
5. If the Scout scan is disabled, skip ahead to Performing Measurement Scan on page 18. Otherwise continue to Performing Scout Scan.

### ***Performing Scout Scan***

1. Caution the subject to remain still and click on **[Start Scan]** to begin the scan. The system software will:
  - Turn off the laser.
  - Select the appropriate filter combinations as determined by the subject thickness.
  - Measure detector counts with no x-rays for background reference.
  - Apply voltage to x-ray source and start the scan.

X-rays will energize and data collection will start as the scanner arm moves down the subject for the prescribed length of scan. Background detector count will be subtracted from the scan counts to provide a true representation of the amount of x-ray absorption. The Current Scan Progress screen will generate the image based on detector output even as the scan data is being collected. An estimate of the remaining scan time will also be displayed.



2. Observe the image on the Current Scan Progress screen as it updates. The scan should be terminated immediately if subject moves during scan. Subject movement will adversely affect the precision and accuracy of the scan.

- Clicking on **[Stop Scan]** will pause the scan after the current scan line is completed. A warning message indicating that there aren't enough scan lines to analyze may be displayed. The scan can be resumed or terminated at this point.
- In an emergency situation, press the **HALT** button on the Scanner Control Panel to terminate the exposure immediately. The system power will have to be recycled to resume scanning after pressing the HALT button. Leave the computer powered on to retain the current study.

**WARNING: If computer power is recycled in this instance, the scanner arm will return to origin position. ENSURE THAT PATIENT IS NOT IN SCANNER ARM PATH!**

When the Scout scan has completed, the Current Scan Progress screen will be updated to indicate that Scout scan is complete and an audible beep will sound.

3. If Scout image quality is satisfactory, proceed to Performing Measurement Scan to prescribe the Measurement scan. If not, go to Scout Scan Progress Screen Options on page 26 for options.
4. Using the Click and Drag method, adjust the boundaries of the cursor box to define the area to be measured.

### ***Performing Measurement Scan***

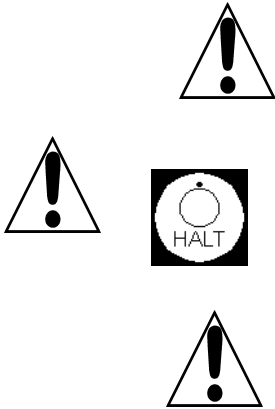
1. Click on **[Measure Scan]** to start the Measurement scan after cursors are placed correctly.
  - If not using the Scout scan, click on **[Start Scan]** to start the Measurement scan.

The software will:

- Select the appropriate filter combinations as determined by the subject thickness.
- Measure detector counts with no x-rays for background reference.
- Open the beam shutter and start the Measurement scan.

X-rays will energize and data collection will start as the scanner arm moves down the subject for the prescribed measurement scan. Background detector count will be subtracted from the scan counts to provide a true representation of the amount of x-ray absorption.

The Current Scan Progress screen will display the image as it develops, show how many lines will be scanned and give an estimate of the remaining Measurement scan time.



2. Monitor the image closely for any indication of subject movement. The scan should be terminated immediately if subject moves during scan. Subject movement will adversely affect the quality of the scan.

- Clicking on **[Stop Scan]** will pause the scan after the current scan line is completed. A warning message indicating that there aren't enough scan lines to analyze may be displayed. The scan can be resumed or terminated at this point.
- In an emergency situation, press the **HALT** button on the Scanner Control Panel to terminate the exposure immediately. The system power will have to be recycled to resume scanning after pressing the HALT button. Leave the computer powered on to retain the current study.

**WARNING: If computer power is recycled in this instance, the scanner arm will return to origin position. ENSURE THAT PATIENT IS NOT IN SCANNER ARM PATH!**

An audible beep will sound to indicate that the scan is complete. System software will also update the Current Scan Progress screen with the "Scan Complete" message.

3. Review the image. If image is satisfactory and no evidence of patient/subject movement during the scan is exhibited, click on **[Analyze]**.
  - The **Save & Exit** option will save the data to the default storage for analysis at a later time.
  - The **Extend Scan** option allows extension of the measurement scan by adding a user-defined number of scan lines to the current scan.
  - The **Discard** option will, after confirmation by the operator, discard collected data and return to the Main Menu.
4. Help the patient/subject up from the scanner table if no further scans are to be performed. Make sure scanner arm will not impede patient's ability to sit up. Remember that patient may require a few minutes to regain equilibrium after lying down for a length of time.

### Analysis

1. At the DEFINE REGIONS screen, create and position Special Region Cursors to identify regions of interest. See Operator's Guide (Special Regions Cursors). A Research scan of a rat is shown in following examples.

FIGURE 6



- Research scans can analyze up to 5 regions of interest per study.
2. Click on **[NEXT REGION]** to adjust cursors if needed.
    - Use the Show Comparison feature (see Comparison Image on page 23) to aid in positioning cursors in the same place as the subject's initial scan.
  3. Once all regions are properly positioned, select *Analysis Menu* item **Results** to view result values.

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## Results

- The image will display with trending graphs to the right of the image on Results Page 1 (Figure 7). (Images in this guide are shown in reversed video mode for illustrative purposes.)
- The BMD (in g/cm<sup>2</sup>), BMC (in grams), and AREA (in cm<sup>2</sup>) for each region of interest will be displayed below the graphs. The length and width of each ROI will be displayed on Results Page 2 (Figure 8).
- Soft Tissue values will be presented on Results Page 2 if Soft Tissue Composition option is enabled.

View the image (which is not for diagnostic purposes) to ensure that cursors are positioned correctly and analysis results are satisfactory.

- The **Image** selection on the *Analysis Menu* presents commands for optimizing the displayed image.

**Note:** The **Show Baseline mode is recommended for viewing bone and non-bone pixels.**

- Click on **[Continue-Print]** to print report as determined by Print Setup.
- Analysis results will be saved to the default storage location as a scan data file under patient/subject's name and *Main Menu* will be displayed.
- Click on **[Main Menu]** to save scan data and exit to Main Menu without printing report.
- Selecting **Print - Print Report** at the *Analysis Menu* will allow customization of Printer Setup for the current scan.

FIGURE 7

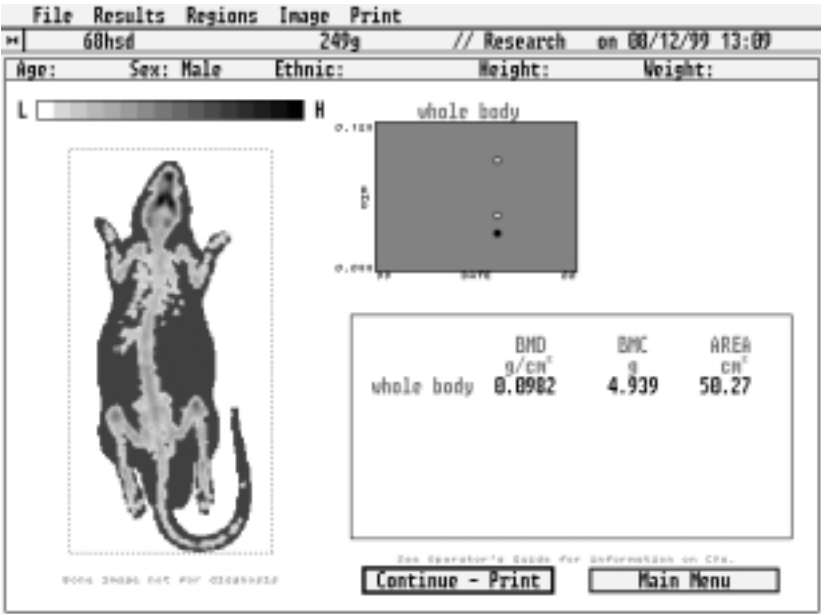
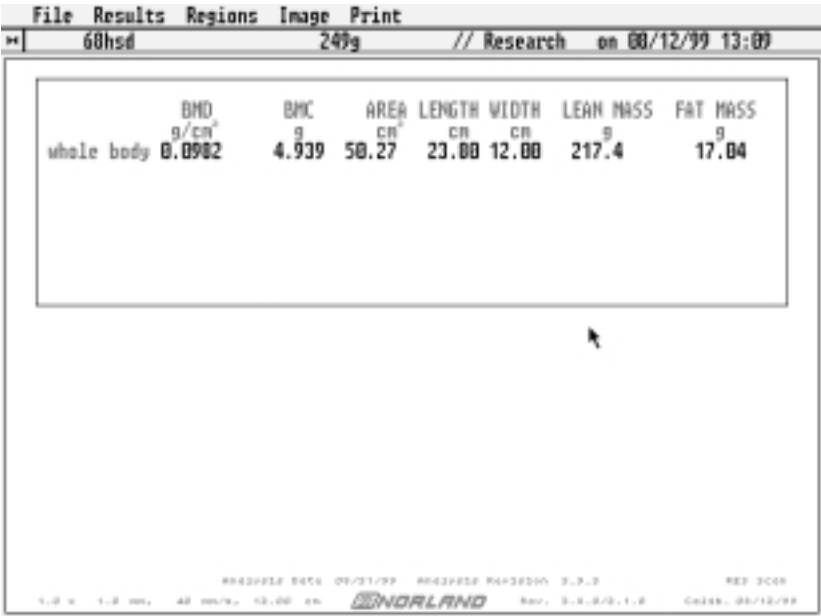


FIGURE 8



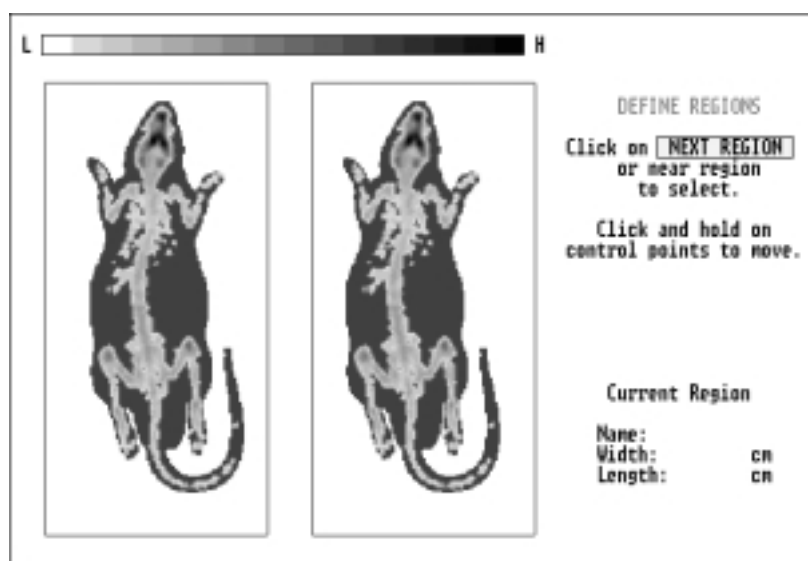
## Comparison Image

Modifying cursor placement to match previous scans of the subject can be performed using a comparison image of the patient/subject's initial scan.

1. At the REVIEW REGIONS screen, select *Analysis Menu* item **Image** and click on **Show Comparison**.

The subject's first scan image is recalled and presented to the right of the current scan using the same linear scale as the existing image.

FIGURE 9



2. Click on **[NEXT REGION]** to activate cursor control points and position cursors to match the initial scan image.
3. Once positioned, selecting **Results** from the *Analysis Menu* will recalculate the data with the new cursor positions. It is not necessary to Hide Comparison before displaying the results or saving the data.

## Reanalyzing Scan Data

The Host software allows an operator to reanalyze a scan using the Reanalyze command. This command starts the analysis process over from the beginning, retaining any operator-defined special regions.

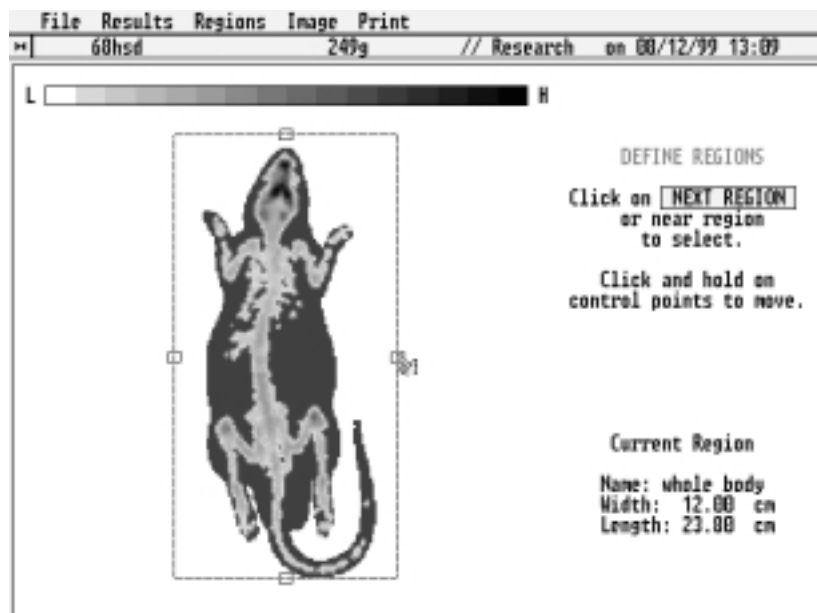
- After the scan data is collected, the measurement region of interest cannot be changed using **Reanalyze**.
- The Reanalyze command may also be used to reanalyze old scans with a new version of system software.



If a series of scans are to be reanalyzed, it is important to reanalyze the subject's initial scan first. This will establish new baseline areas and values to which subsequent scans may be compared.

1. Select the scan data file to be reanalyzed from *Main Menu* item **Select**.
2. Select **Modify Regions** from the *Main Menu* (Analysis) or *Analysis Menu* (Regions).
3. Click on **Reanalyze**. The DEFINE REGIONS screen will display.

FIGURE 10



4. Position cursors as in normal analysis.
  - Analysis Options can be changed prior to Reanalyze.

System software reprocesses the data to complete the reanalysis, retaining operator-defined special regions.



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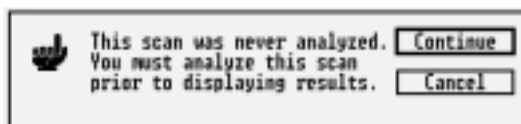
## Analyzing Saved Scan Data

The Host software allows an operator to perform a scan on a subject, save the data, and then analyze the saved scan data later.

1. Select *Main Menu* item **Select** and click on **Select a Patient**. Double-click on desired patient/subject from list.

A listing of the patient's (or subject's) scans is displayed. A check mark in the right column indicates that the scan has been analyzed.

2. Double click on the scan to be analyzed. The following message will be displayed; click on **[Continue]** to proceed.



3. Position cursors as described in the normal scan procedure.
4. Once cursors are in position, select *Analysis Menu* item **Results** and then click on Results Page 1.
  - If patient (or subject) has been scanned previously, modify cursors to match Comparison Image.

## Scout Scan Progress Screen Options

Scan Progress Screen Options	
Repeat Scout	<p>If scanned area is unsatisfactory, a new Scout and Measurement scan can be defined.</p> <p>Use the pointer to click onto the cursor and drag it to the correct start point.</p> <p>Caution the subject to lie still.</p> <p>Click on <b>[Repeat Scout]</b>.</p> <p>The scanner will perform a new Scout scan.</p>
Extend Scan	<p>A new scan length screen is displayed when the extend scan option is selected.</p> <p>Enter the desired extended length (the default extend length is 10.0mm).</p> <p>Caution the subject to lie still and click on <b>[Extend Scan]</b> to resume scanning. The Extend Scan command may be repeated until the scan length has reached its limit of 255 lines.<sup>a b</sup></p>
Discard	<p>System software cautions the operator with the message:</p> <p>Are you sure you want to discard your data?</p> <p>Click on <b>[Discard]</b> to abandon the scan data and return to the Main Menu.</p> <p>Click on <b>[Cancel]</b> to return to the Current Scan Progress screen.</p>

- a. It is important that subsequent scans of the subject use the same region of interest (ROI).
- b. If additional lines are added, make the appropriate entry in Scan Comments to ensure that the same number of lines are collected on subsequent scans.