TABLE OF CONTENTS

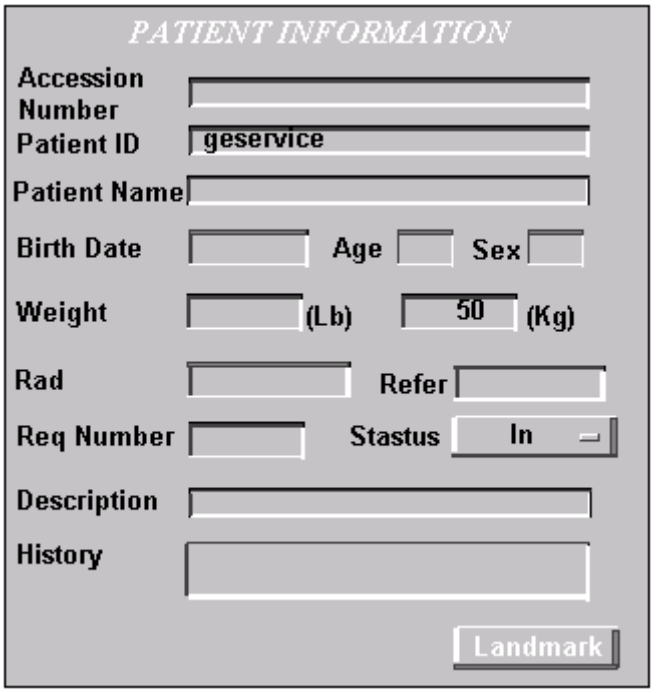
1. Overview

This manual describes how to perform the LV shim scan and how to see the LV shim result. Before starting the LV shim program, it is necessary to perform [Auto Prescan] three times and save the Grad shim value. LV shim for Signa Ovation is a tool to analyze the inhomogeneity of the Magnetic field.

2. Gradshim Value Adjustment

2-1 Scan Parameter Setting

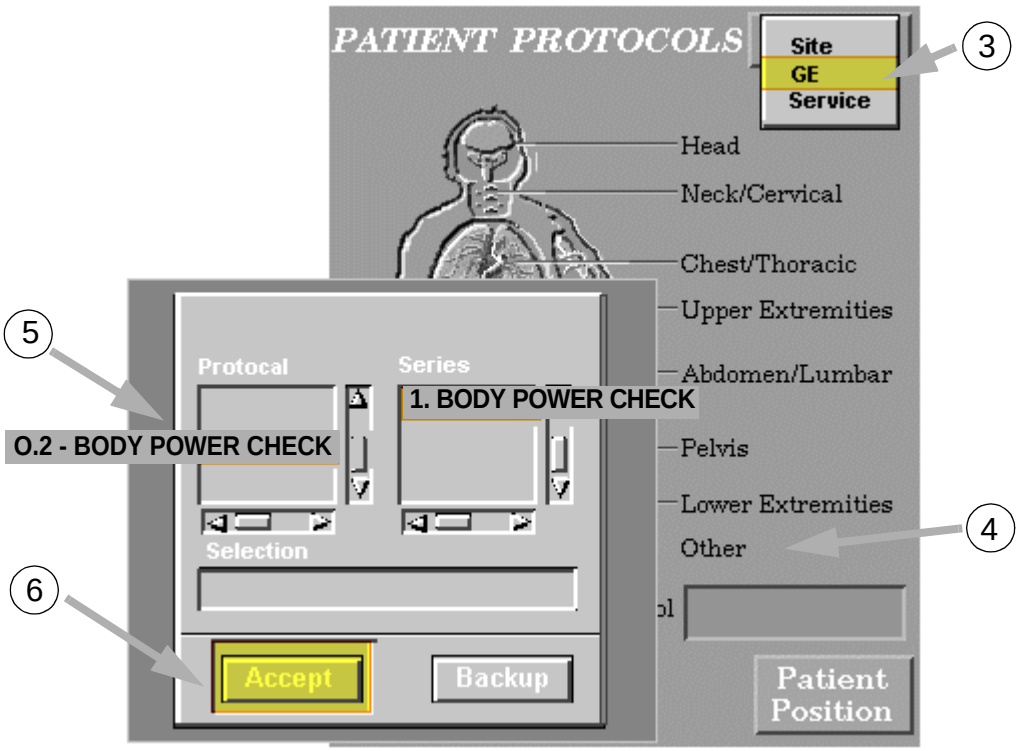
1. Click **[New Pt]**.
2. Input the following data in "patient information".
   - •Patient Data: geservice
   - •Weight: 50(Kg)



PATIENT INFORMATION
ILLUSTRATION 1

2-1 Scan Parameter Setting(continued)

3. Choose **GE**.
4. Click **Other**. Protocol window comes Up.
5. Select **[O.2 - BODY POWER CHECK]** from protocol.
   Select **[1. BODY POWER CHECK]** from series.
6. Select **[Accept]**.)



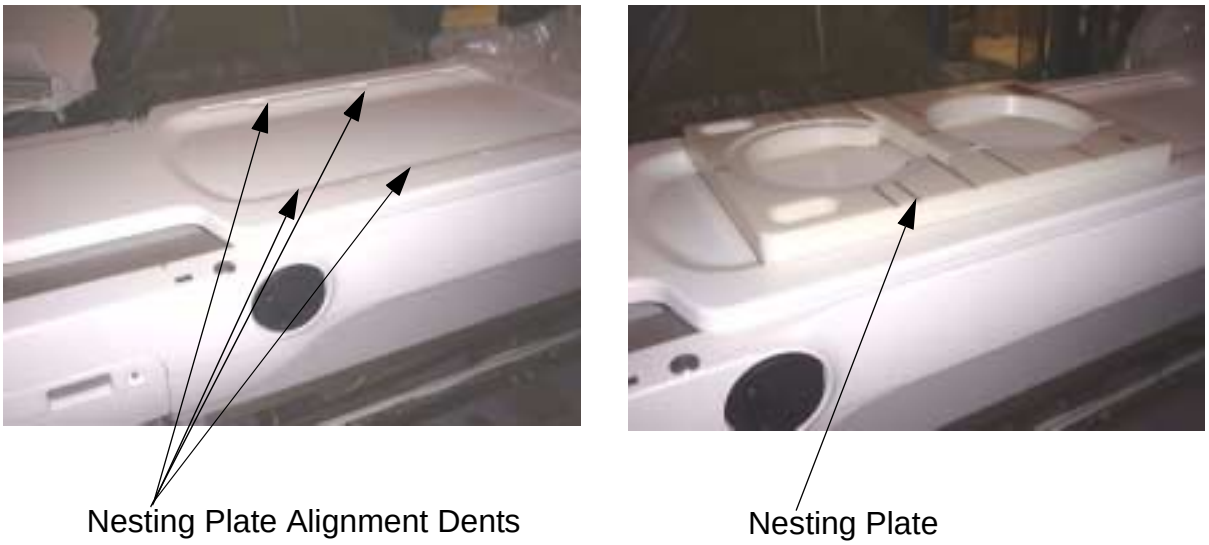
PATIENT INFORMATION
ILLUSTRATION 2

7. Select Save Series.

SAVE SERIES
ILLUSTRATION 3

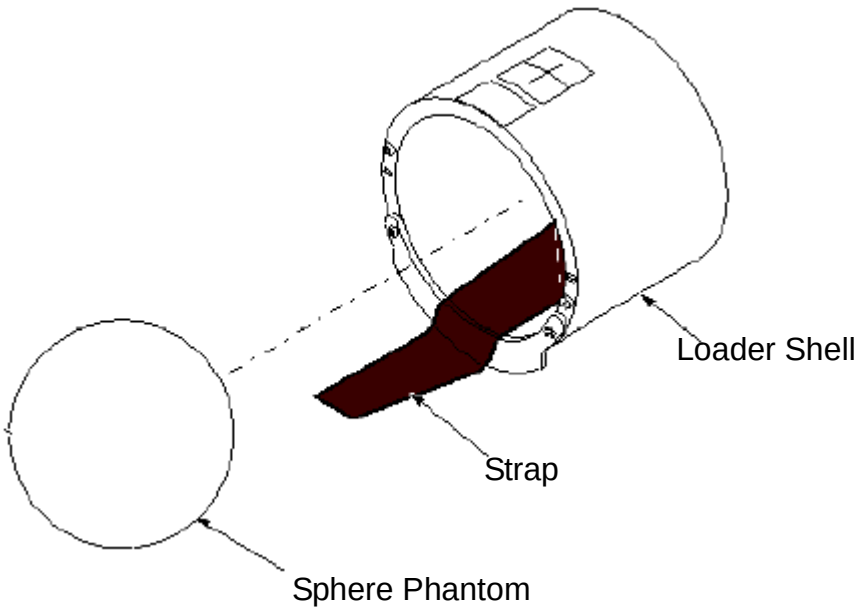
2-2 Phantom Setting

1. Set the nesting plate on the cradle by aligning the dents of cradle and projection of nesting plate as shown below.



NESTING PLATE
ILLUSTRATION 2-1

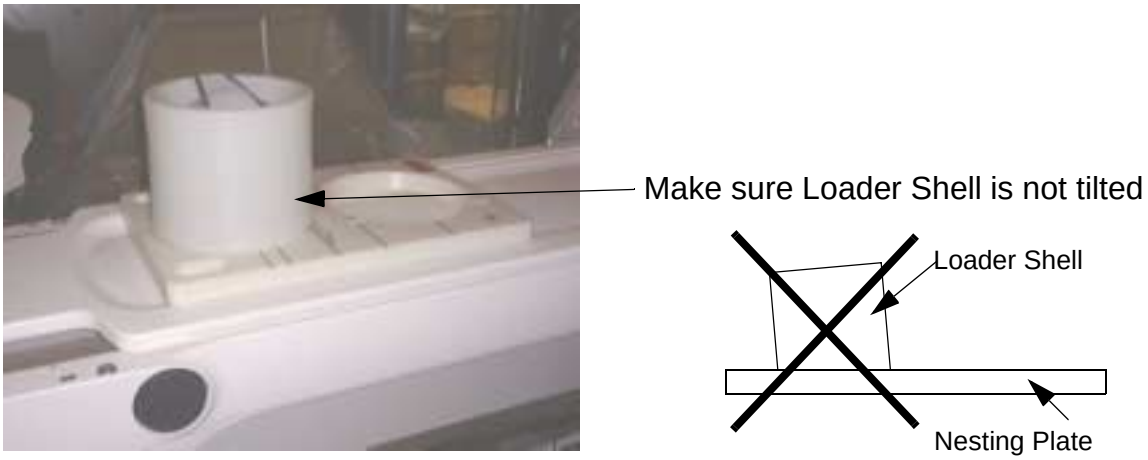
2. Insert Body Sphere in Loader Shell as shown below. Fasten strap to top of Loader Shell to secure Body Sphere Phantom inside loader.



INSERT SPHERE PHANTOM IN LOADER SHELL
ILLUSTRATION 2-2

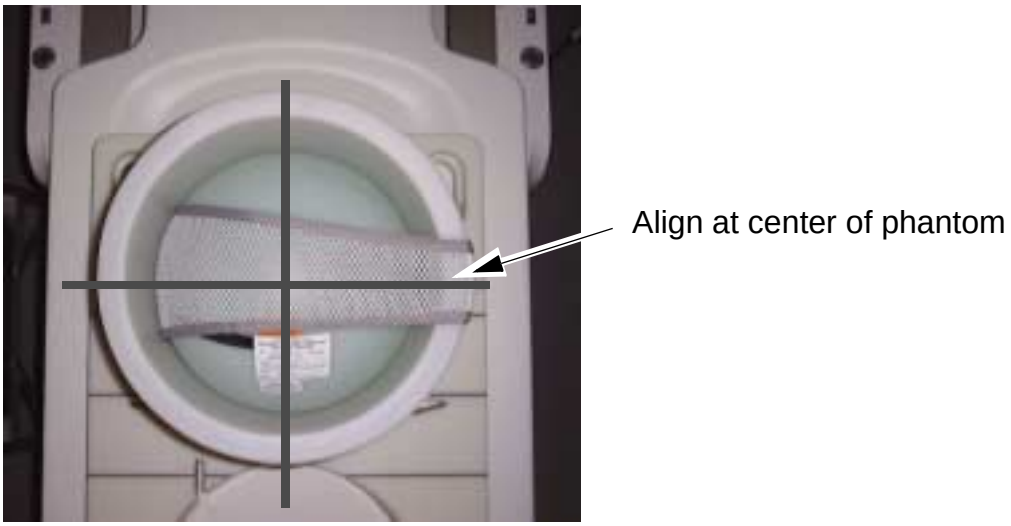
2-2 Phantom Setting (continued)

3. Set the Loader Shell on nesting plate as shown below. Make sure that the Loader Shell is horizontal (not tilted).



PLACE LOADER ON NESTING PLATE
ILLUSTRATION 2-1

4. Move the cradle so that the alignment light hit the center of the Sphere Phantom.



ALIGN
ILLUSTRATION 2-2

5. Press [LANDMARK] and then press [MOVE TO SCAN].

2-3 Auto Prescan

1. Select **[Auto Prescan]** three times.

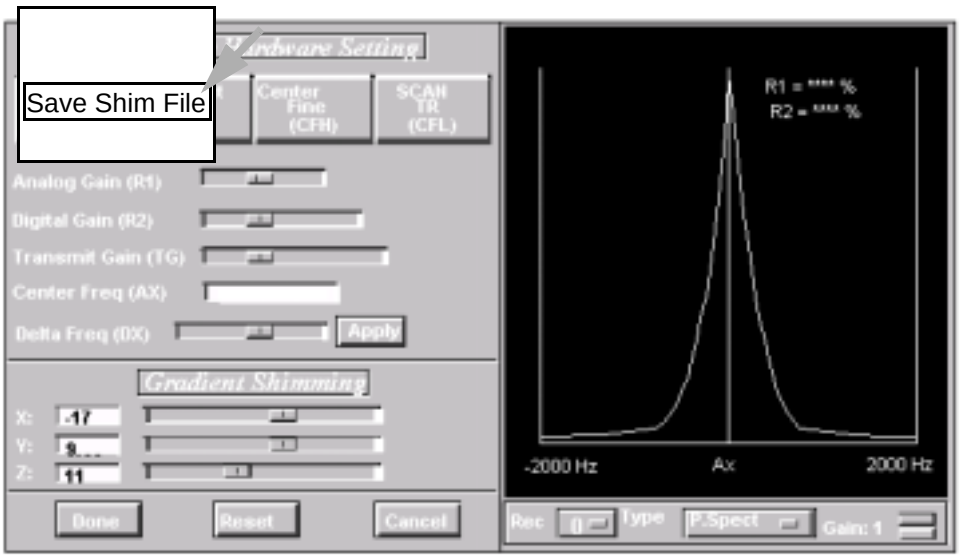
AUTO PRESCAN
ILLUSTRATION 4

2-4 Manual Prescan

1. Select **[Manual Prescan]**.

MANUAL PRESCAN
ILLUSTRATION 5

2. Save the shim File.(Files/Save Shim File)

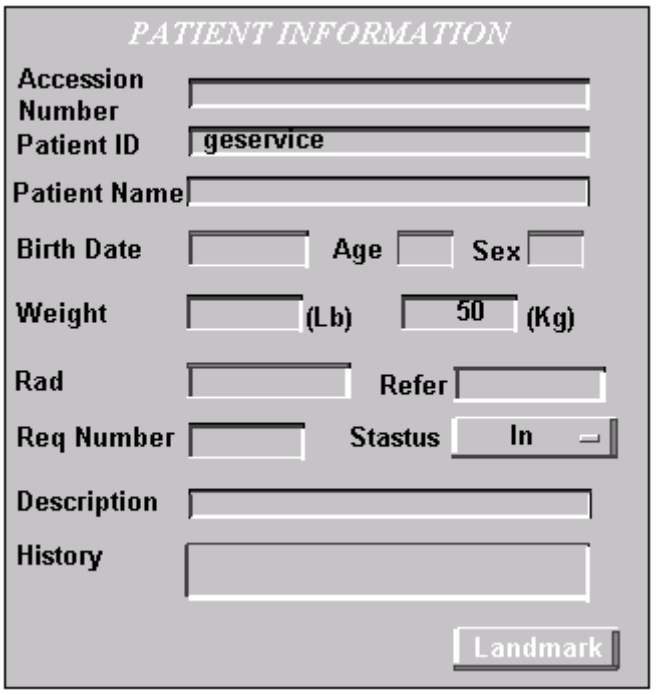


MANUAL PRESCAN
ILLUSTRATION 6

3. LV Shim Procedure

3-1 Scan Parameter Setting

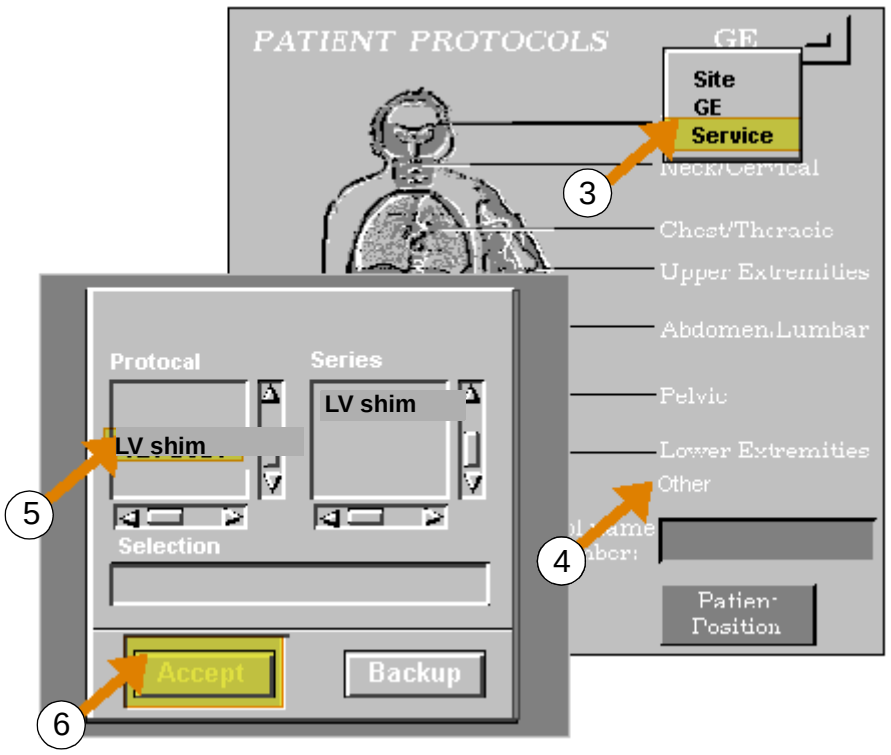
1. Click **[New Pt]**.
2. Input the following data in "patient information".
   - •Patient Data: geservice
   - •Weight: 50(Kg)



PATIENT INFORMATION
ILLUSTRATION 7

3-1 Scan Parameter Setting(continued)

3. Choose **Service**.
4. Click **Other**. Protocol window comes Up.
5. Select **[LV shim]** from protocol.
   Select **[LV shim]** from series.
6. Select **[Accept]**.)



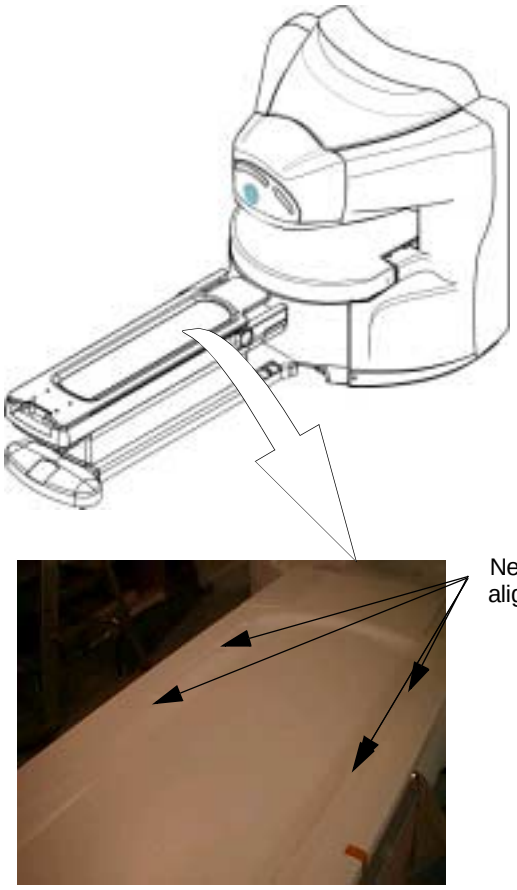
PATIENT INFORMATION
ILLUSTRATION 8

7. Select Save Series.

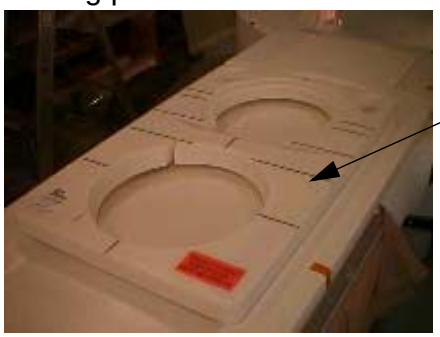
SAVE SERIES
ILLUSTRATION 9

3-2 Phantom Setting

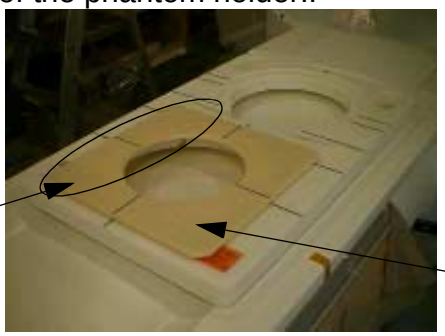
1. Set the phantom according to the following procedure



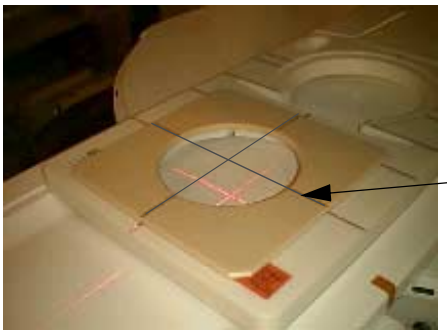
a. Set the nesting plate on the cradle by aligning the dents of cradle and projection of nesting plate.



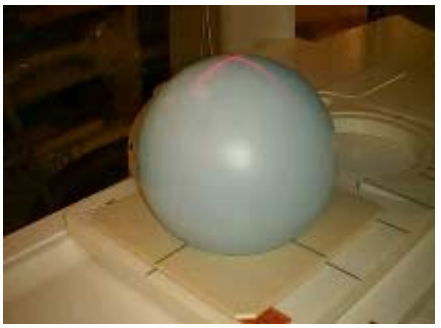
b. Set the Phantom holder by aligning the slit of nesting plate and the projection of the phantom holder..



c. Move the cradle so that the alignment light hit the alignment line of the phantom holder



d. Set the ball phantom on the phantom holder.



PHANTOM SETTING
ILLUSTRATION 10

2. Press [LANDMARK] and then press [MOVE TO SCAN].

3-3 Scan

1. Select **[Scan]**.

Note

Do not change the Gradient shim value by Manual Prescan.

SCAN
ILLUSTRATION 11

2. Verify that scanning has been started.

4. Data Analysis

1. Select [Cal/Check] and Select [LV Shim]. Then, click [Start].

SERVICE DESKTOP MANAGER
ILLUSTRATION 12

4. Data Analysis (continued)

2. The following menu is displayed.
   Select “1” and hit [Return] key.
3. Verify that shim type is changed to “**label**”.
4. Verify that the Exam, Seriese, and Image number correspond to the LV shim scan Image.
5. Verify that “Display Mag and Phase Diff Images” is “**No**”.
6. Verify that “Sampling Diameter in Centimeters” is “**30**”.
7. Verify that “General Mechanical Plot Points ” is “**No**”.

```
        INITIALIZING ... PLAESE WAIT.

              <<< LVshim Analysis >>>
                 (Magnet Type : GEYMS Mid Field Open 0.35T)
1. Shim Type (Gradient, lagel): Gradient
2. Image Data (Ex, Se, Im Number)        :52447,1,1
3. Operation Mode (Service or Reserch)   :Service
4. Display Mag and Phase Diff Images     :No
5. Calibration File Name: <None Selected>
6. Existing Current in Each Coil.

EGRAD:  49.000    YGRAD:   18.000   ZGRAD:   86.000

0.Accept(q or s to quit).

Enter the Index Number to Change Default(0..6)  [0] 1 [Return]


              <<< LVshim Analysis >>>
                 (Magnet Type : GEYMS Mid Field Open 0.35T)
1. Shim Type (Gradient, lagel): label
2. Image Data (Ex, Se, Im Number)        :52447,1,1
3. Operation Mode (Service or Reserch)   :Service
4. Display Mag and Phase Diff Images     :No
5. Sampling Diameter in Centimeters      :30
6. General Mechanical Plot Points        :No

0.Accept(q or s to quit).

Enter the Index Number to Change Default(0..6)  [0]
```

LVSHIM ANALYSIS 1
ILLUSTRATION 13

4. Data Analysis (continued)

8. Enter “0” and hit [Return] key. The result will be decomposed and displayed as follows.
9. Enter comments if you need and hit [Return] key.
10. Enter “Y” and hit [Return] key. .

```
              <<< LVshim Analysis >>>
                  (Magnet Type : GEYMS Mid Field Open 0.35T)
1. Shim Type (Gradient, lagel): label
2. Image Data (Ex, Se, Im Number)        :52447,1,1
3. Operation Mode (Service or Reserch)   :Service
4. Display Mag and Phase Diff Images     :No
5. Sampling Diameter in Centimeters      :30
6. General Mechanical Plot Points        :No

0.Accept(q or s to quit).

Enter the Index Number to Change Default(0..6)  [0] 0 [Return]

Processing ... done.  6 of 6

Exam 52147, Series 1, Image 1
6 Planes, Bandwidth = 1000Hz, FOV = 60 cm, DSV = 30 cm
Inhomogeneity =30.16 Hz (2.024 ppm)

Harmonic Coefficients (Zero to Peak)

Z1:   29.08         X:   13.82       Z2X:    -4.71
Z2:   -4.64         Y:  -24.54       Z2Y:   -17.06
Z3:  -45.50        ZX:  -37.78   ZX2_ZY2:    10.56
Z4:  -29.79        ZY:  -62.93       ZXY:    -6.18
Z5:   24.37     X2_Y2:    6.06        X3:    -4.79
Z6:  -34.53        XY:    0.64        Y3:    15.45

General LVshim report files
===========================
Please enter one line of comments (Max 70 characters)
Press Return at the end of line
To leave a comment line empty, press Return
|---------------------- Mas comment length ------------------|
Comment Line :
LVshim TEST [Return]
Exit LVshim? (Y,N) [N]  Y [Return]
```

LVSHIM ANALYSIS 2
ILLUSTRATION 14

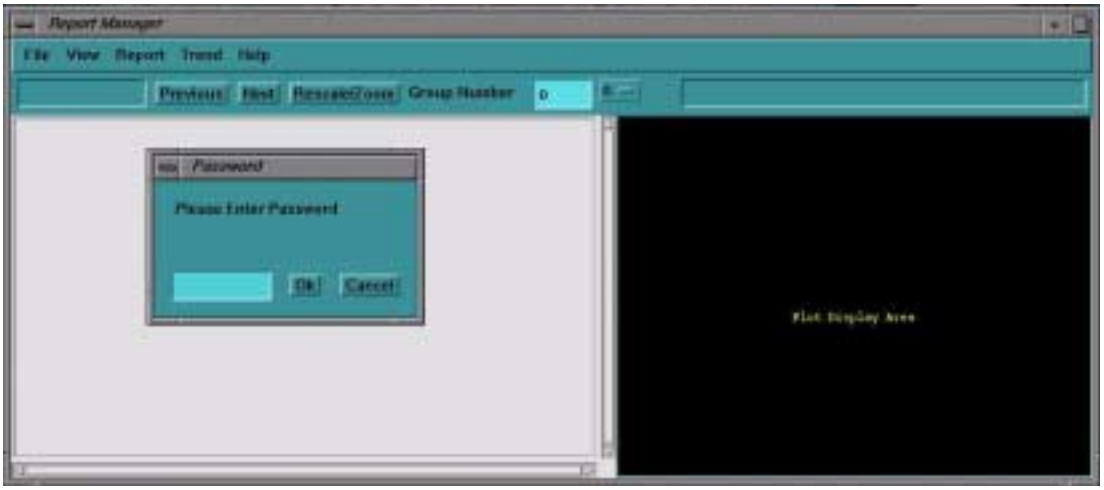
4. Data Analysis (continued)

11..Select [Utility] and Select [Report Manager]. Then, click [Start].

SERVICE DESKTOP MANAGER
ILLUSTRATION 15

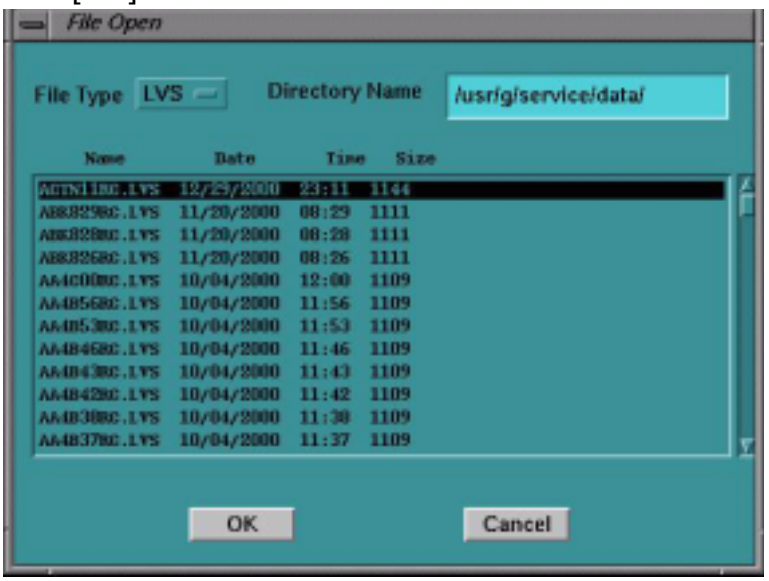
4. Data Analysis (continued)

12.Enter “**mrgo1**” as password and click [**Ok**] button.



REPORT TOOL 1
ILLUSTRATION 16

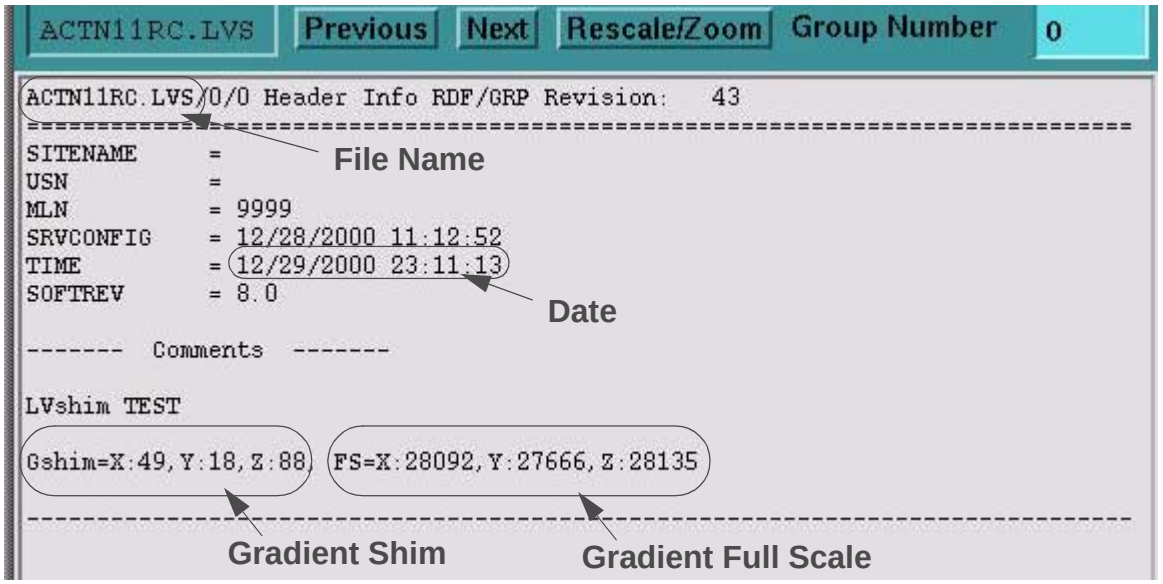
13.Select “**File / Open**”. The following window comes up.
14.Select “**LVS**” from the File Type.
15. Select the file and click [**OK**] button.



REPORT TOOL 2
ILLUSTRATION 17

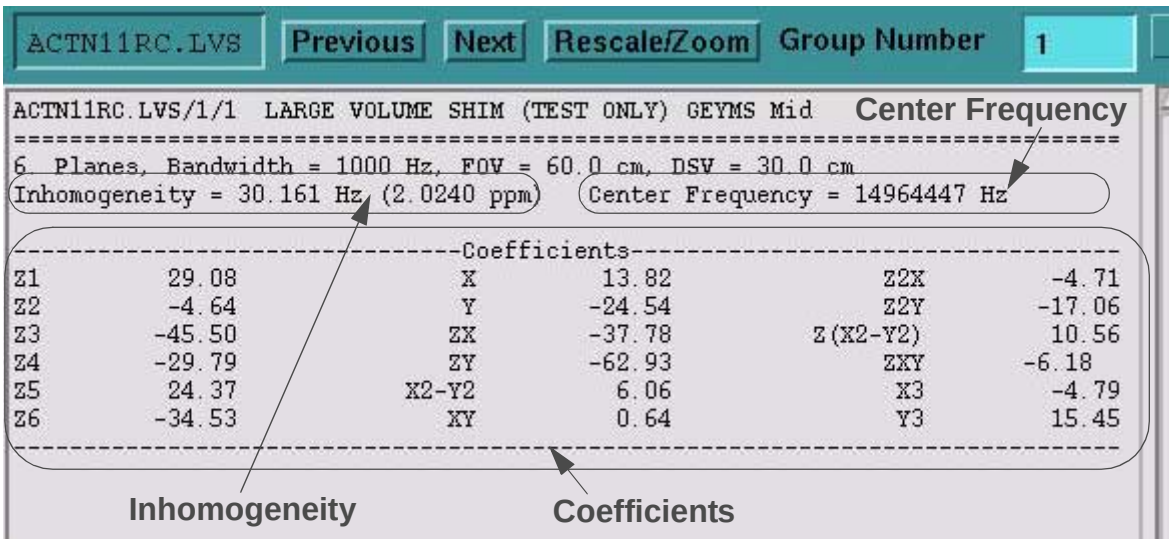
4. Data Analysis (continued)

16. Header page is displayed. Record “File Name”, “Date”, “Gradient Shim”, and “Gradient Full Scale” in datasheet (Section 6).



REPORT TOOL 3
ILLUSTRATION 18

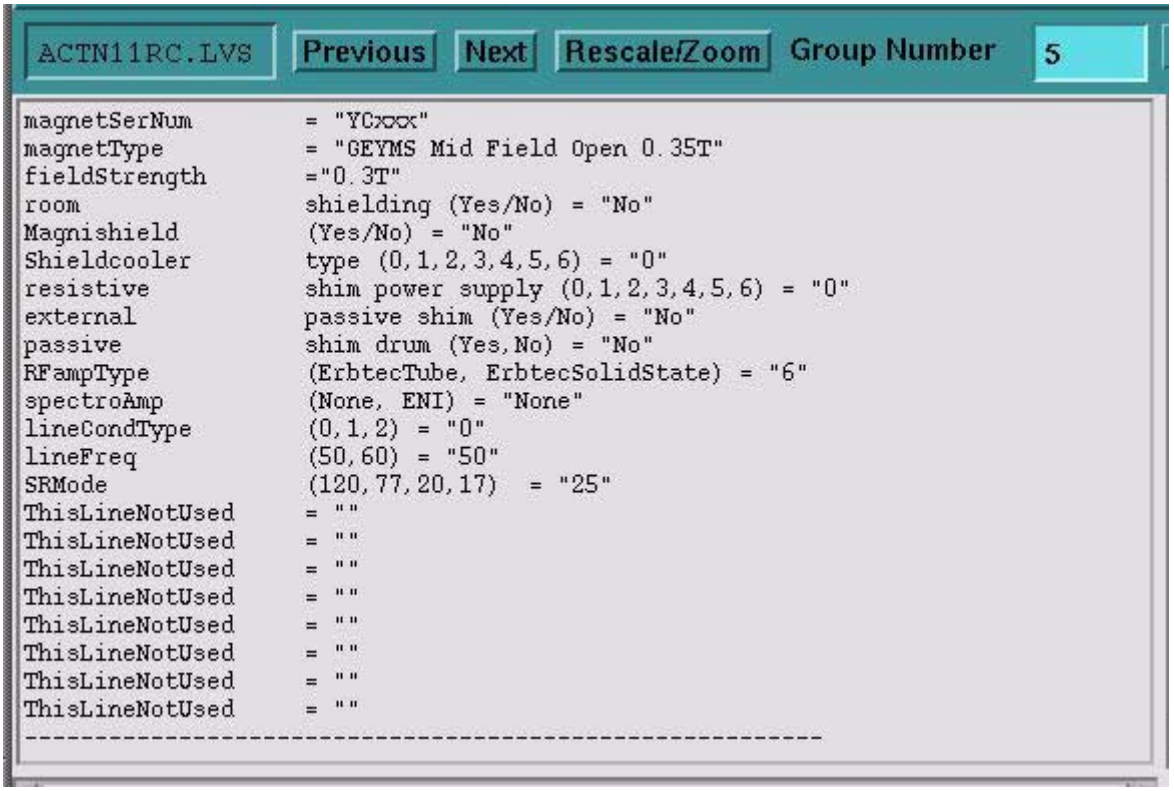
17. Click [Next] button. The following screen comes up. Record “Inhomogeneity”, “Center Frequency”, and “Coefficients” in datasheet (Section 6).



REPORT TOOL 4
ILLUSTRATION 19

4. Data Analysis (continued)

18.Click [Next] button. The following screen comes up. Nothing to record.



REPORT TOOL 5
ILLUSTRATION 20

19.Exit Report manager by selecting “File/Exit”.

5. Data Sheet

Gradient shim(X)			
Gradient shim(Y)			
Gradient shim(Z)			
Gradient full scale(X)			
Gradient full scale(Y)			
Gradient full scale(Z)			
pk-pk In-homogeneity[Hz]			
pk-pk In-homogeneity[ppm]			
Z1			
Z2			
Z3			
Z4			
Z5			
Z6			
X			
Y			
ZX			
ZY			
X2_Y2			
XY			
Z2X			
Z2Y			
ZX2_ZY2			
ZXY			
X3			
Y3			

Revision History

Rev	Date	Auther	Primary Reasons For Change
0	Feb 9, 2001	Y. Masumo	Initial Release
1	Aug 22, 2002	Y. Masumo	Page 10: Error correction.