

**Magphan® Quantitative Imaging Phantom, EMR121 Manual**

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**WARNING**

To avoid phantom damage:

- This phantom should be stored at room temperature. Do not allow this phantom to be frozen or subjected to high heat. If this phantom is frozen the housing and spheres will be damaged beyond repair.
- Do not allow phantom to sit without water. If the phantom sits empty the contrast spheres will dry out and develop air bubbles and cracks. If for some reason the phantom is drained it should not be allowed to dry out and must be filled quickly.
- This phantom is not intended to be shipped from site to site. If you have to ship the phantom you must insert the pressure expansion balloon screw into the top of the phantom. If this is not installed the housing seal may release and the phantom will drain.

To avoid fire:

- This product has an FH3-4 mm/min flame rating and is considered to be flammable. It is advised not to expose this product to open flame or high temperature (over 125° Celsius or 250° Fahrenheit) heating elements.

Disregarding these warnings will nullify the Warranty.

**EMR121**



# T h e   P h a n t o m   L a b o r a t o r y

## **Magphan® EMR051 Manual**

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**Magphan® EMR121**

## Introduction

The 18 cm diameter Magphan® Quantitative Imaging Phantom, EMR121 has been developed to be used in smaller head coils which do not have clearance for the 20 cm diameter EMR051. Richard Mallozzi, Ph.D. who worked with The Phantom Laboratory on the development of the EMR051 (used in the Alzheimer's Disease Neuroimaging Initiative (ADNI) study) guided us in the development of the EMR121.

This phantom is designed for use with an automated analytical analysis. Image Owl Inc. offers its customers the ability to analyze image sets of the Magphan® EMR121 with their web based processing tools.

Image Owl Inc.  
[www.imageowl.com](http://www.imageowl.com)

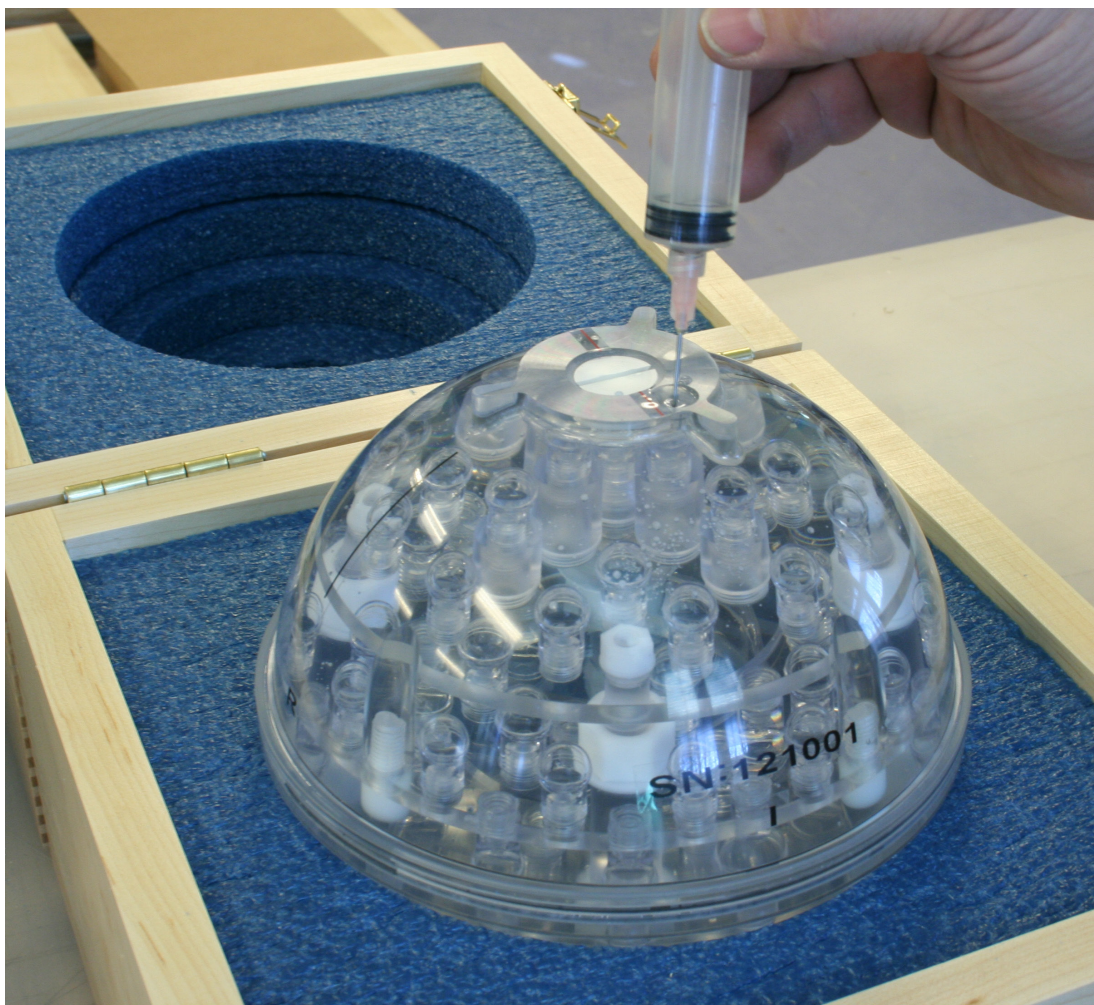
We do not make specific recommendations on the content of your quality assurance program because each imaging study has its own unique set of requirements.

If you have any additional questions please contact The Phantom Laboratory at:  
Phone: 800-525-1190 or 518-692-1190  
Fax: 518-692-3329  
email: [sales@phantomlab.com](mailto:sales@phantomlab.com)  
Additional product information is available at: [www.phantomlab.com](http://www.phantomlab.com)

### Initial Phantom Setup

The Magphan® EMR121 phantom is shipped with all spheres filled. Upon receipt of the phantom open the case, remove and discard the aluminum foil wrap and inspect the phantom to see that it is full of water. If the water level is lower than 1 cm below the top, the phantom has drained during shipment and may have a leak. In this case fill the phantom with distilled water and contact The Phantom Laboratory.

After unpacking the phantom allow it to reach room temperature, then remove the pressure expansion balloon screw from the top of the phantom. Top off the phantom with distilled water and insert the flat head screw with o-ring into the phantom. If there is any air in the phantom a small air bleeder screw is located on the 3 lobed fitting on the phantom body. After removing the screw, water can be added with a small funnel or a syringe to eliminate air.

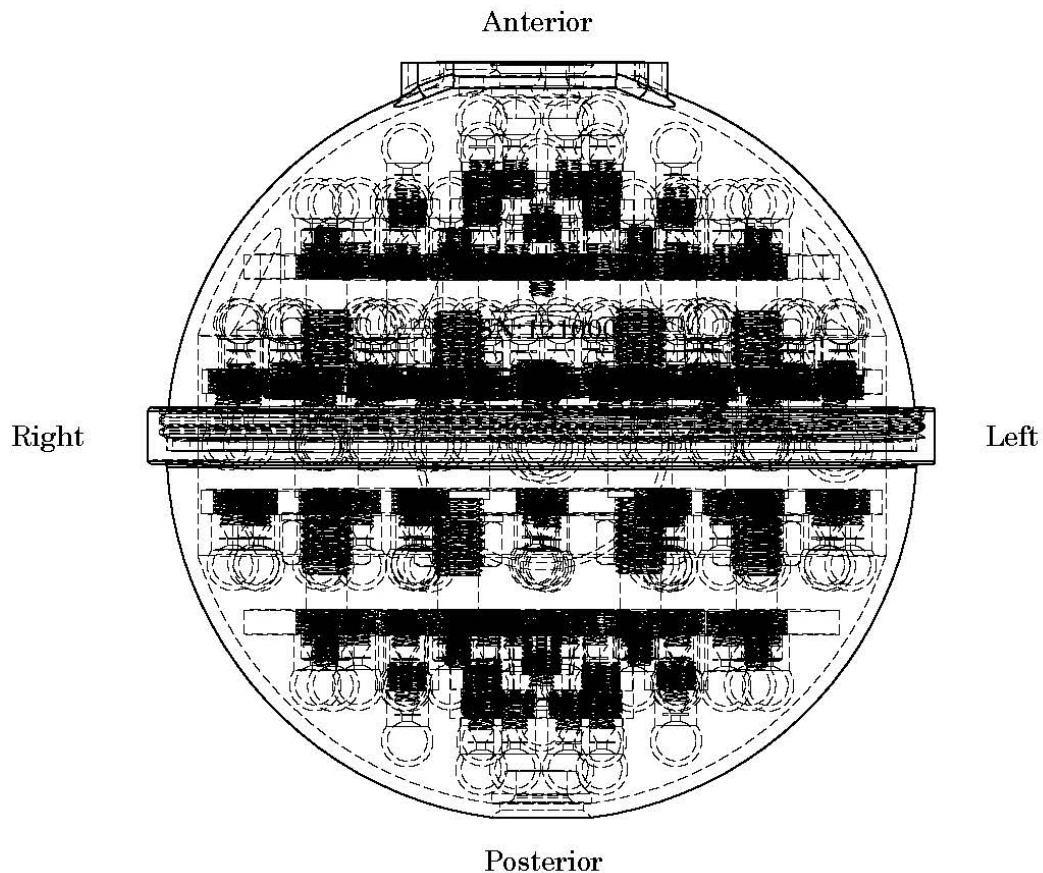




## Scanning the Phantom

The Magphan® EMR121 phantom has a flat end enabling it to be placed on a shelf or table without rolling off. Because each coil is unique there is no standard method for positioning the phantom in a coil.

The established protocol for the ADNI study is to position the phantom's flat side on anterior and then rotate the phantom on the rounded fill port until the L, R (for left and right) and I, S (for inferior and superior) are in the correct position with regard to the patient table. Positioning pads or foam can be used to stabilize the phantom in the correct orientation. The phantom will work in other positions, however the images in this manual reflect the ADNI alignment protocol.



**Sphere Contrast Liquids**

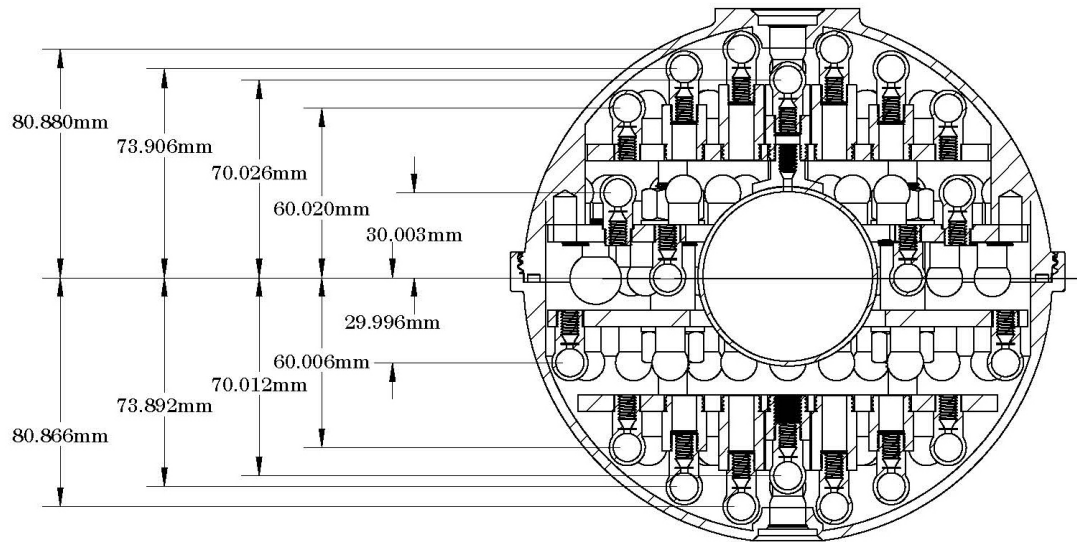
The Magphan® EMR121 phantom contains 127 spheres.

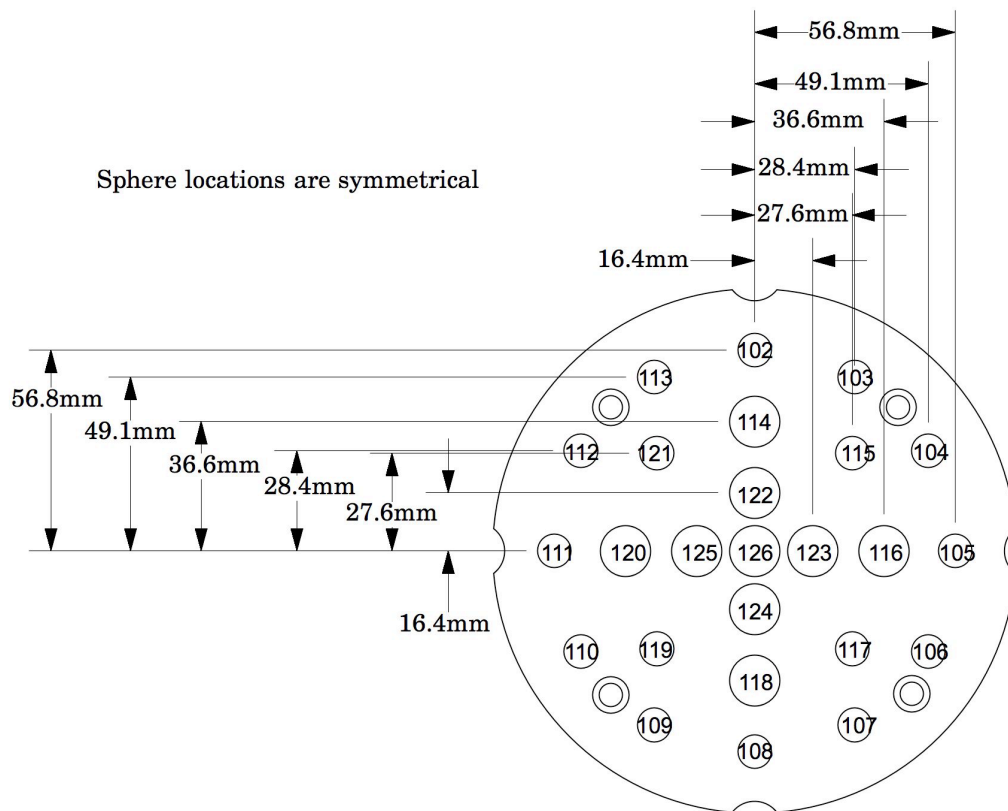
Sphere ID	Color	Number of Spheres	Grams of Copper Sulfate Penta Hydrate per liter
1.0cm	none	123	0.820
1.5cm	none	3	0.820
6.0cm	none	1	0.820



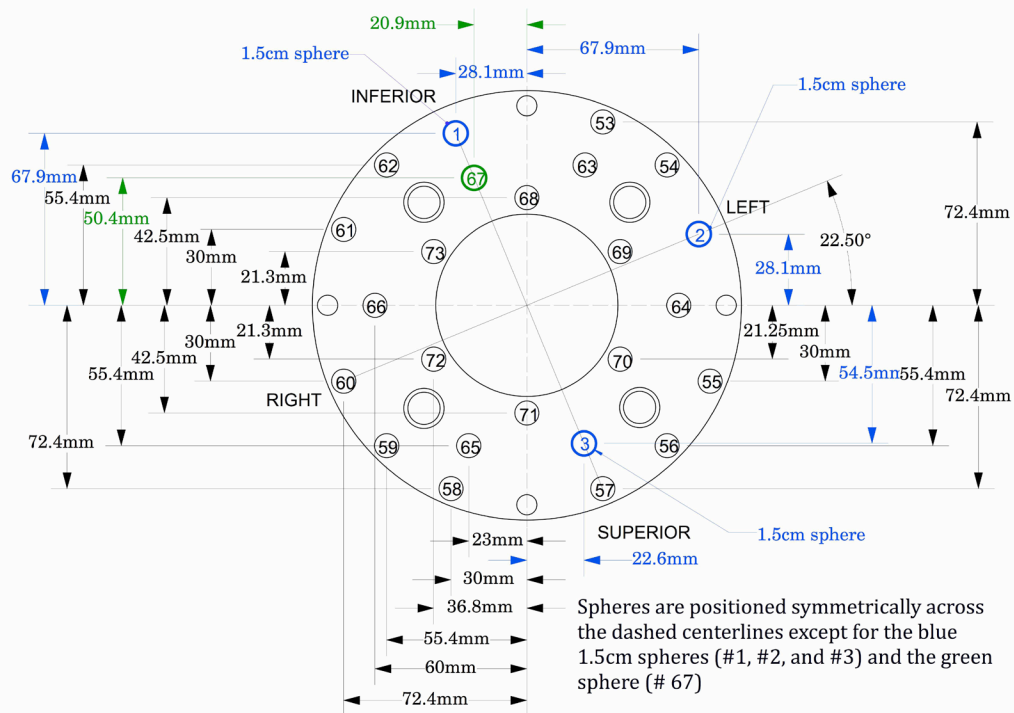
## Sphere Locations

This phantom has 11 test planes based off 4 plate surfaces. The drawing below shows the different planes within the phantom. The 8 top and bottom planes result from different length support posts being used on the top and bottom plates.

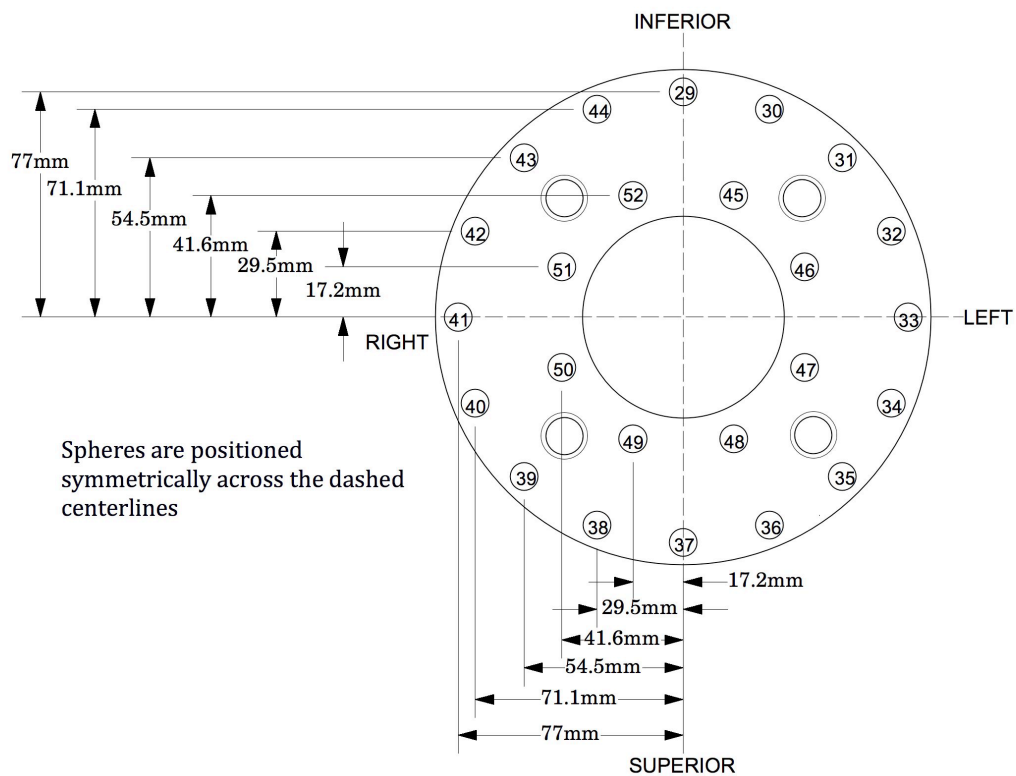




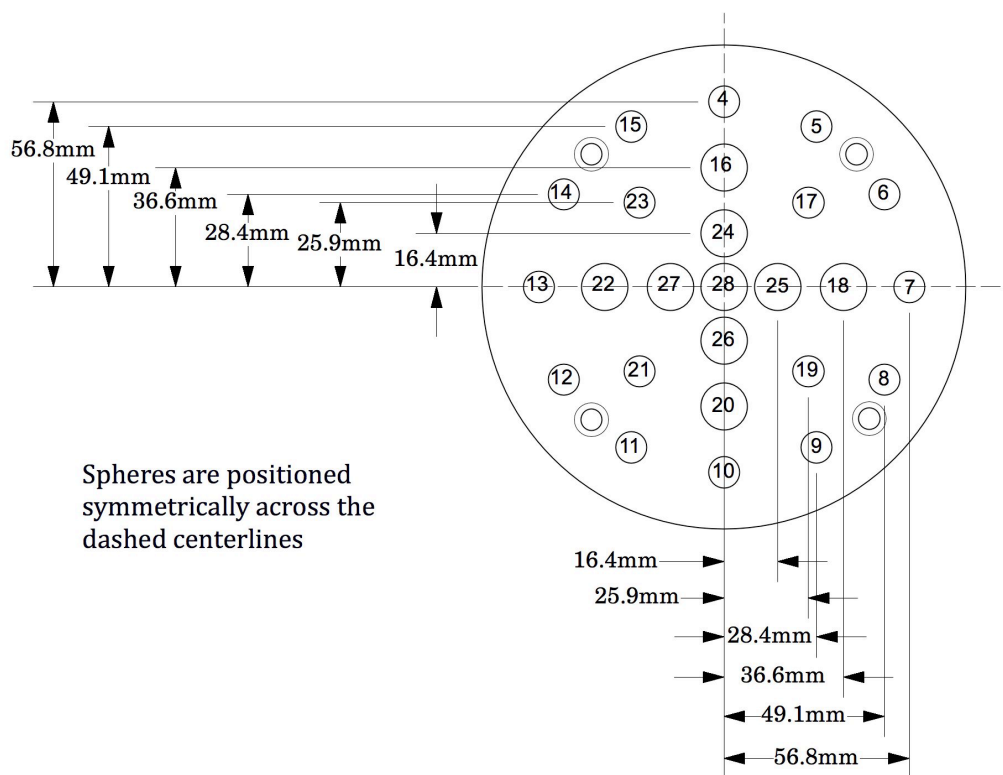
### Bottom Plate EMR122



### Lower middle plate EMR123



### Upper Middle Plate EMR124



### Top Plate EMR125

#### Sphere location chart

A spread sheet with x, y and z sphere locations can be downloaded from our website.

**WARRANTY**

THE PHANTOM LABORATORY INCORPORATED ("Seller") warrants that this product shall remain in good working order and free of all material defects for a period of one (1) year following the date of purchase. If, prior to the expiration of the one (1) year warranty period, the product becomes defective, Buyer shall return the product to the Seller at:

By Truck

The Phantom Laboratory, Incorporated  
2727 State Route 29  
Greenwich, NY 12834

By Mail

The Phantom Laboratory, Incorporated  
PO Box 511  
Salem, NY 12865-0511

Seller shall, at Seller's sole option, repair or replace the defective product. The Warranty does not cover damage to the product resulting from accident or misuse.

IF THE PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTED, THE SOLE AND EXCLUSIVE REMEDY SHALL BE REPAIR OR REPLACEMENT, AT SELLER'S OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT. THIS LIMITATION APPLIES TO DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, DIRECT OR INDIRECT DAMAGES, LOST PROFITS, OR OTHER SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF CONTRACT, TORT OR OTHERWISE, OR WHETHER ARISING OUT OF THE USE OF OR INABILITY TO USE THE PRODUCT. ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANT ABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.