

# CT Imaging QA Kit for ATOM<sup>®</sup> Phantoms



Model 700-QA

User Guide

**CIRS**

900 Asbury Ave • Norfolk, Virginia 23513 • USA • Tel: 757-855-2765 • [WWW.CIRSINC.COM](http://WWW.CIRSINC.COM)



# LUNG TISSUE INSERT

The Model 700-QA lung target insert consists of two types of targets: cylindrical and spherical. The Insert background is composed of lung-exhale tissue equivalent epoxy; targets are composed of soft-tissue equivalent epoxy.

<b>BACKGROUND:</b>	Lung Exhale Tissue-Equivalent Epoxy
<b>CYLINDRICAL TARGETS</b>	
<b>PROPERTIES:</b>	+10 HU; (+1% linear attenuation)
<b>DIMENSIONS:</b>	Ø 7, 5, 3.5, 2.5, 1.8 & 1.2 mm
<b>QUANTITY:</b>	18 - three (3) of each diameter
<b>SPHERICAL TARGETS</b>	
<b>PROPERTIES:</b>	+10 HU; (+1% linear attenuation)
<b>DIMENSIONS:</b>	Ø 10, 8, 6.5, 5, 4, 3.2, 2.5 & 2 mm
<b>QUANTITY:</b>	8 - one (1) of each diameter



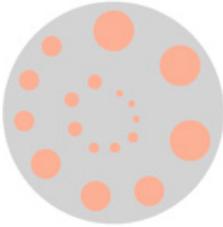
Figure 1. - Lung Tissue Target Insert in the lung

## SOFT TISSUE INSERTS

The Model 700-QA includes three soft tissue inserts that feature cylindrical, spherical or true 3D line pair targets. Insert backgrounds and targets are composed of soft-tissue equivalent epoxy. The targets are arranged in a circular pattern, with diameters selected to provide 2:1 cross-sectional area ratio for each adjacent target pair.

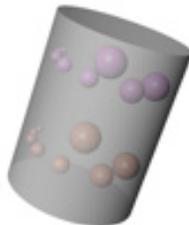
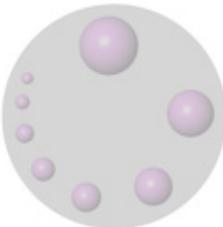
### CYLINDRICAL TARGETS

<b>PROPERTIES:</b>	Group 1: +10 HU contrast above background (+1% linear attenuation)  Group 2: +20 HU contrast above background (+2% linear attenuation)
<b>DIMENSIONS:</b>	Ø 7, 5, 3.5, 2.5, 1.8 & 1.2 mm
<b>QUANTITY:</b>	18 per target group 1 & 2; Three (3) of each diameter



### SPHERICAL TARGETS

<b>PROPERTIES:</b>	Group 1: +10 HU contrast above background (+1% linear attenuation)  Group 2: +20 HU contrast above background (+2% linear attenuation)
<b>DIMENSIONS:</b>	Ø 10, 8, 6.5, 5, 4, 3.2, 2.5 & 2 mm
<b>QUANTITY:</b>	8 per target group 1 & 2; One (1) of each diameter and contrast



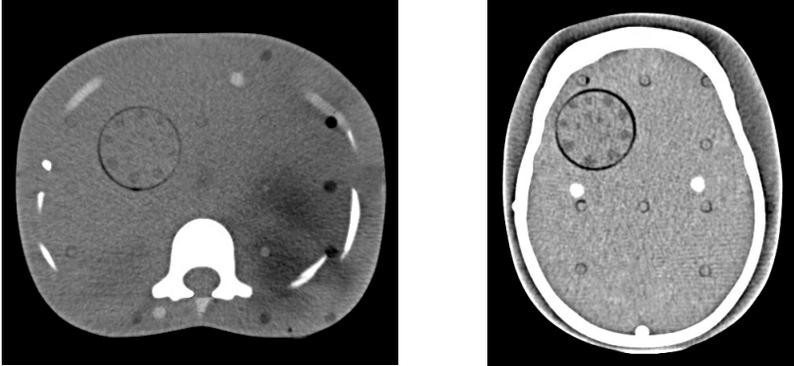
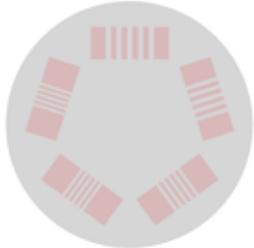
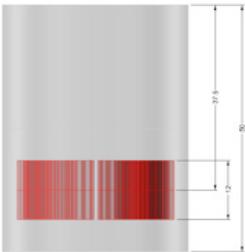


Figure 2. - Soft Tissue Target Inserts in the abdomen and brain

**TRUE 3D LINE PAIR TARGETS**

The true 3D spatial resolution patterns, ranging from 6 lp/cm to 12 lp/cm, are made of lines with a high and low contrast difference of about 300 HU. The low contrast serves also as a background for the 3D line pair patterns, which are arranged radially within the soft tissue insert. The line patterns are 3D patterns having 12mm in height along the longitudinal axis.

<b>PROPERTIES:</b>	350 HU above soft tissue 300 HU above line pair pattern background (low contrast)
<b>DIMENSIONS:</b>	5 line pairs: 5 mm wide x 12 mm deep
<b>LP/CM</b>	6, 8, 10, 11 & 12



## **RECOMMENDED USE**

Since CT Imaging QA Kit inserts are interchangeable they can be used in any location drilled for 700-QA inserts in the ATOM phantoms. The design of the 700-QA inserts has no indexing features associated with any of the inserts. This lack of indexing features allows for unlimited positioning combinations.

The intent of the inserts is to help the user determine if the settings of his/her scanning protocols need adjustments. To do this the user should scan with a protocol that is appropriate for structures with CT numbers varying from about 0 HU to about 400 HU (this range encompasses soft tissue as well as insert targets). When imaging in lung, if one wants to view the surrounding lung then the HU variation should be from about -800 HU to 400 HU. The user should decide if he/she wants to make protocol setting adjustments based on what is seen on the images taken with the appropriate protocol.

Adjustments to protocol settings can either improve or deteriorate the image quality based on user knowledge of equipment settings, previous adjustments, as well as a series of other factors that can be user depended or independent. The level of visibility of low contrast targets and line pair patterns should help the user decide if the protocol settings are adjusted in the right direction or not. Also, the level of visibility of low contrast targets and line pair patterns should help the user judge if scanning conditions influence the image quality. This can be achieved by scanning the same insert in different locations in the ATOM body while maintaining the same protocol settings. Once the user determines that he/she has reached the best protocol setting adjustments, which yields the best image quality for the most appropriate scanning protocol, then he/she can do the same for other protocols.

## **WARRANTY**

All standard CIRS products and accessories are warranted by CIRS against defects in material and workmanship for a period as specified below. During the warranty period, the manufacturer will repair or, at its option, replace, at no charge, a product containing such defect provided it is returned, transportation prepaid, to the manufacturer. Products repaired in warranty will be returned transportation prepaid.

There are no warranties, expressed or implied, including without limitation any implied warranty of merchantability or fitness, which extend beyond the description on the face hereof. This expressed warranty excludes coverage of, and does not provide relief for, incidental or consequential damages of any kind or nature, including but not limited to loss of use, loss of sales or inconvenience. The exclusive remedy of the purchaser is limited to repair, recalibration, or replacement of the product at manufacturer's option.

This warranty does not apply if the product, as determined by the manufacturer, is defective because of normal wear, accident, misuse, or modification.

### **NON-WARRANTY SERVICE**

If repairs or replacement not covered by this warranty are required, a repair estimate will be submitted for approval before proceeding with said repair or replacement

### **RETURNS**

If you are not satisfied with your purchase for any reason, please contact your local distributor prior to returning the product. Visit <https://www.cirsinc.com/distributors/> to find your local distributor. If you purchased your product direct through CIRS, call Customer Service at 800-617-1177, email [rma@cirsinc.com](mailto:rma@cirsinc.com), or fax an RMA request form to 757-857-0523. CIRS staff will attempt to remedy the issue via phone or email as soon as possible. If unable to correct the problem, a return material authorization (RMA) number will be issued. Non-standard or "customized" products may not be returned for refund or exchange unless such product is deemed by CIRS not to comply with documented order specifications. You must return the product to CIRS within 30 calendar days of the issuance of the RMA. All returns should be packed in the original cases and or packaging and must include any accessories, manuals and documentation that shipped with the product. The RMA number must be clearly indicated on the outside of each returned package. CIRS recommends that you use a carrier that offers shipment tracking for all returns and insure the full value of your package so that you are completely protected if the shipment is lost or damaged in transit. If you choose not to use a carrier that offers tracking or insure the product, you will be responsible for any loss or damage to the product during shipping. CIRS will not be responsible for lost or damaged return shipments. Return freight and insurance is to be pre-paid.

### **WITH RMA NUMBER, ITEMS MAY BE RETURNED TO:**

CIRS  
Receiving  
900 Asbury Ave,  
Norfolk, Virginia, 23513 USA

<b>PRODUCT</b>	<b>WARRANTY PERIOD</b>
Model 700-QA - CT Imaging QA Kit for ATOM® Phantoms	60 Months

**MANUFACTURED BY:**

**CIRS**

**COMPUTERIZED IMAGING  
REFERENCE SYSTEMS, INC.**

900 Asbury Ave  
Norfolk, Virginia 23513 USA

**Toll Free:** 800.617.1177

**Tel:** 757.855.2765

**Fax:** 757.857.0523

**Email** admin@cirsinc.com

**[www.cirsinc.com](http://www.cirsinc.com)**

**Technical Assistance**

1.800.617.1177

©2012 Computerized Imaging Reference Systems, Inc. All rights reserved.  
Specifications subject to change without notice.  
Publication: 700-QA UG 072220



Computerized Imaging Reference Systems, Inc. has been certified by UL DQS Inc. to **(ISO) 13485:2016**. Certificate Registration No. 10000905-MP2016.