

**CTB-00944****Date:** *October 1, 2021***Author:** Service Engineering, Image Science**Product** Selenia Dimensions/3Dimensions **Subsystem:** AWS**Subject:** Explanation of Narrow Band Seen in Digital Breast Tomosynthesis (DBT) Images

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**Purpose**

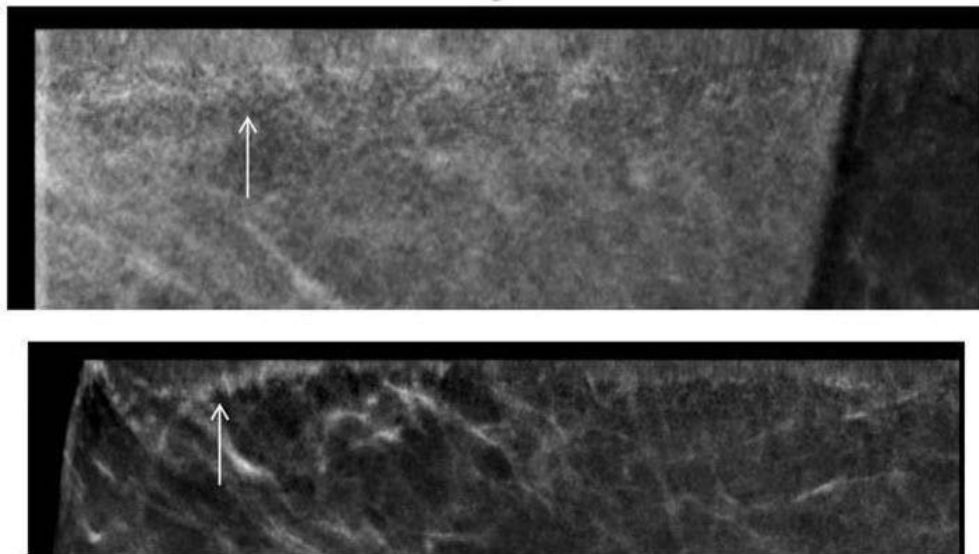
The purpose of this document is to provide guidance on a narrow band that may be visible on Selenia Dimensions/3Dimensions Digital Breast Tomosynthesis (DBT) images.

**Scope**

This document applies to all Selenia Dimensions and 3Dimensions systems licensed for DBT imaging.

**Reason**

DBT images acquired using Selenia Dimensions/3Dimensions systems may display a narrow horizontal band that appears to be blurry, typically seen in the pectoral area on MLO views. Figure 1 shows an example of this on the top section of an MLO image in the pectoral area.

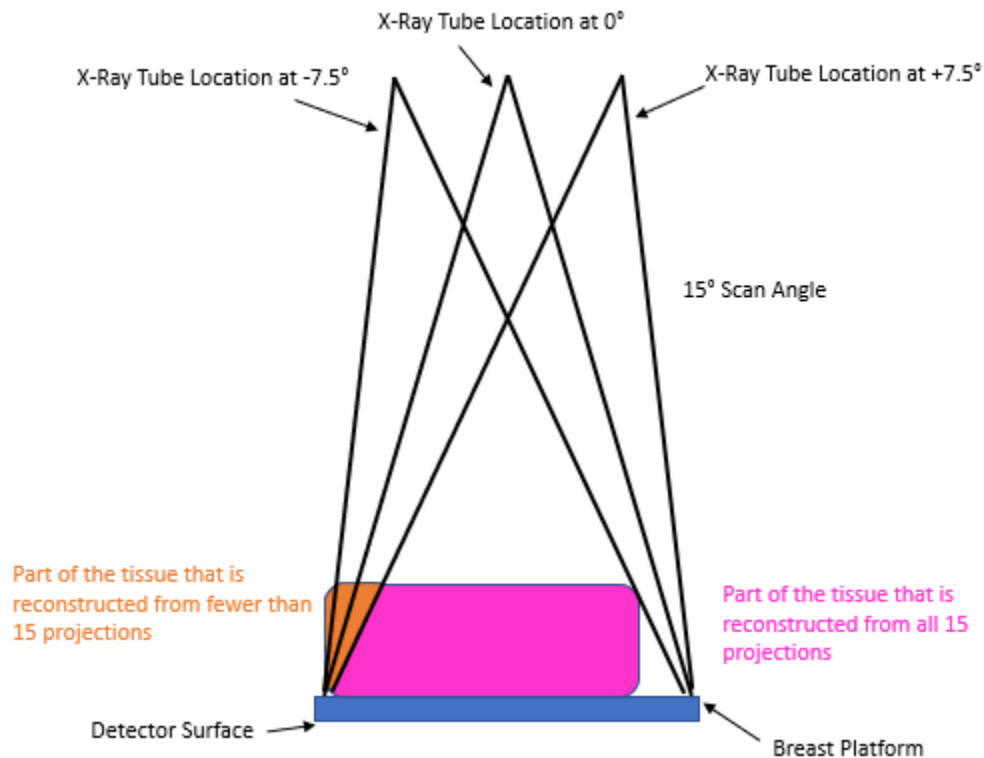


**Figure 1 – Example of Horizontal Band in the Reconstructed DBT Slice**

## Technical Bulletin (cont.)

The artifacts are related to the geometry of the imaging system. DBT combines multiple, low dose two-dimensional X-ray projections obtained at different angles to create a three-dimensional image of the breast.

Figure 2 illustrates the principle of a 15° DBT scan. Three of the tube positions and x-ray fields of view (FOV) are shown: the -7.5° projection, the +7.5° projection, and the 0° projection. The full reconstruction volume is the section seen by all projections.



**Figure 2 - Reconstruction Volume Relative to a Breast for 15° DBT Scan MLO View**

Because the breast tissue at the edges of the image receptor may fall outside of the imaging area on some projections, there is less information contributing to those regions in the reconstruction volume. This may increase the noise at the edges of the volume, resulting in the appearance of the band shown in Figure 1.

The reason the “noisy” pattern would be seen on top of MLO views is because the pectoral part would fall in the region not covered by all projections. CC views would have the breast in the center of detector and be covered by all projections, so this would not occur.

This behavior is expected. and should not affect the diagnostic value of the DBT images (both reconstructions and synthetic 2D images derived from DBT).