



Focal Zone

Description and Reason For Testing

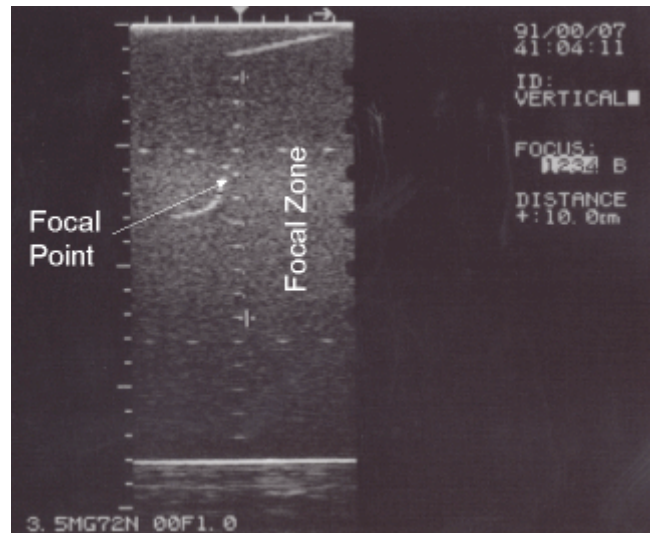
The focal zone is the region surrounding the focal point in which the intensity and the lateral resolution is the greatest. Clinically, structures examined within the focal zone will provide the best diagnostic information obtainable. The focal zone can be affected by changes in the pulsing/receiving section of the imaging system or damage to the transducer.

Testing Procedure

1. Position the transducer over the vertical group of line targets on the phantom, until a clear image is obtained. A line rather than a dot is produced on the display. The length of the line is indicative of the width of the beam. Therefore, targets inside the focal zone form a shorter line than those outside of the focal zone. Adjustments in the gain settings will change the length of the line targets displayed. Freeze the display and obtain a hard copy.
2. For a variable focused transducer, scans with several different focal zone settings should be performed. Dynamically focused transducers may not display changes in the width of the line targets. However a change in the intensity can be observed upon adjustment of the transmitting focus of the transducer.
3. Using the hard copy, draw a line connecting the ends of the echoes received

from the line targets (both sides), the line should form a smooth curve. This will illustrate the shape of the sound beam. Now locate the narrowest portion, this is the focal zone. Measure the width of the beam and the depth at this point.

4. Document the depth of the focal zone and the measurement of the focal width on the quality assurance record.



Results

The system's focal zone should remain consistent from week to week when using the same instrument settings and Model 539 phantom. Compare the test results obtained from the baseline records. If the current image demonstrates changes in the system's ability to resolve these targets, corrective action should be considered.