

**EFFECT OF FOCUSING ON SIZING OF SIDE DRILLED HOLE (SDH)
OF DIFFERENT DEPTH USING VARIOUS APERTURE SIZE OF
PAUT ULTRASONIC PROBE**

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ABSTRACT

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This study used the advance instrument of PAUT, the OMNIScan MX2 provided by Malaysian Nuclear Agency to evaluate the size of SDH by using different focusing and various aperture size of a probe. The type of probe used is 5L64 and the specimen is the IOW Block that consist of Side Drilled Hole (SDH) at different depths. The size of SDH is scanned by varying the parameter of the instrument at 16 elements and 32 elements and focusing depth of 10mm, 45mm and 75mm. The elements used contribute to the probe aperture size and gives different range of nearfield which are 20.87mm and 83.89mm. The sizes of SDH are determined by normalization and the beam profiles are constructed. Size of scanned SDH are compared focused which are 15mm, 25mm, 32mm, 43mm and 60mm. The percentage by the actual size of the hole on the IOW block and the percentage error is calculated. The beam profiles showed the depth of SDH where the beam errors of the focused holes are 23.33%, 116.67%, 20.00%, 53.33% and 120.00%. To minimize the percentage error, bigger aperture size can be used to increases the probe sensitivity and the focusing depth must be set within the range of the nearfield. The data obtained from the experiment give a picture on how the aperture size and the focusing depth that have been set on the instrument correlated to each other and also the effect of both parameters on the size of the SDH scanned.

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