

1.3.64. THE IDEAL ANGLE BEAM PROBE FOR DGS EVALUATION

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The DGS method has been developed for circular straight beam transducers generating a rotational symmetric sound field in the test specimen, whereas current angle beam probes, independent whether using circular or rectangular transducers, are generating unsymmetrical sound distributions in the test specimen due to the refraction at the interface between delay line and test specimen.

Today many test specifications refer to angle beam probes with rectangular transducers, which have the shorter dimension in the plane of incidence resulting in additional asymmetry.

Despite this fact, these angle beam probes are used for DGS evaluation. Although some correction methods are described in literature, an exact DGS evaluation is not possible as shown by extensive measurements using test blocks.

In modern equipment precise measurements of distance and gain are given and even the Equivalent Reflector Size is displayed on screen, but the effects of asymmetric sound fields are not considered to the full extent.

This paper describes these effects and methods how to compensate for the asymmetrical sound fields when using DGS evaluation. Measurement results are presented showing more precise results of reflector sizing.