



CERTIFICATE in ACCORDANCE WITH EN12668-2

TRANSDUCER: AM4R-8X9-70

Serial No.: 1134001

Description: Angle Beam Transducer, 4 MHz, 8 mm X 9 mm Element,
70 Degree Refracted Shear Wave, Atlas Series Case Style,
Right Angle Lemo-00 Connector.

Principle Parameters

Reference	Frequency	Active Element	Bandwidth
AM4R-8X9-70	4 MHz	8X9 mm	40 %

Reference documents

EN12668-2 : 2001

ASTM E-1065

ISO 9001 : 2008

Internal procedure: TP105 V17

Quality system

Fabricant: Olympus Scientific Solutions America Corp. certified per Intertek

Instrumentation used

Pulser/Receiver: Epoch III: 3EP055

Digitizer: Epoch III: 3EP055

Cable: LCB-74-4 Length:



Impulse formation

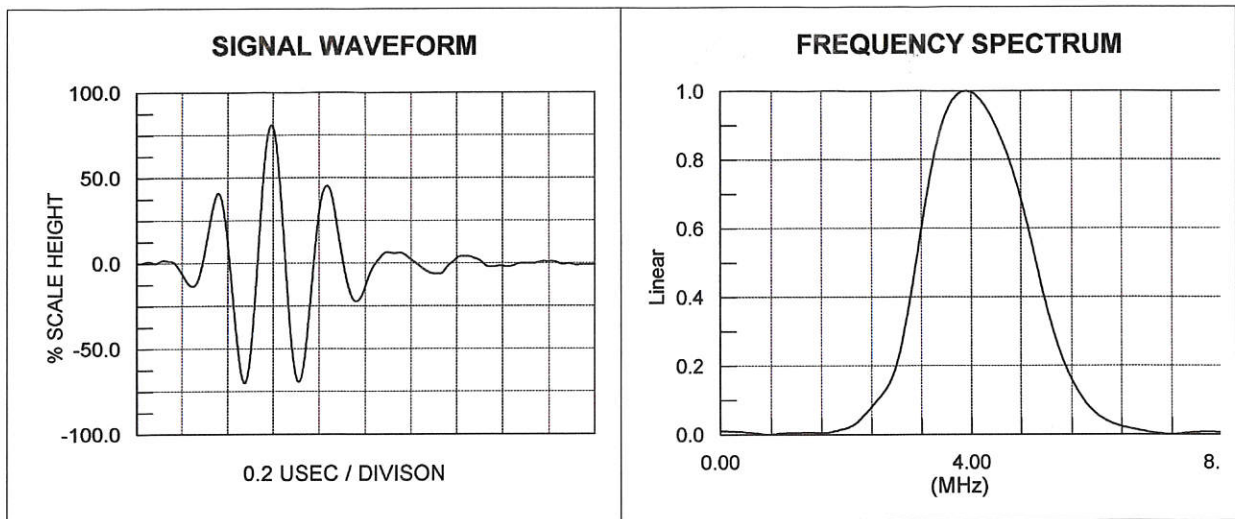
Test conditions:

Pulser Energy: HIGH ; Damping: 50 Ohm

Receiver Gain: 28.3 dB ; Filter: STD

Target: 100 mm steel radius

Test Date: 12-22-2017

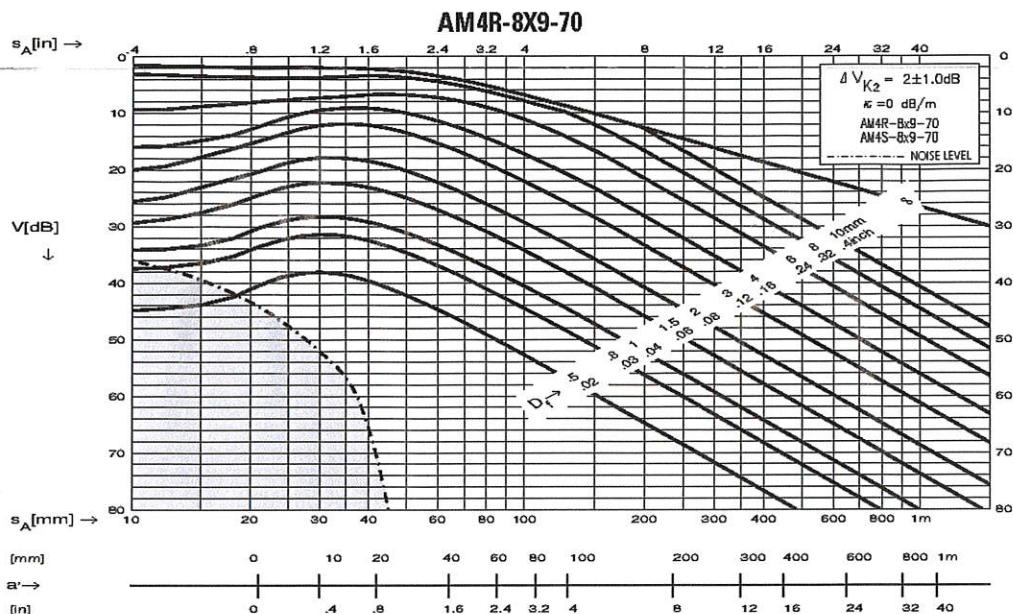


Effective measurands

Parameter	Designation	Min value	Measure	Max value	Units
-14 dB waveform duration	t_{14}	N/A	0.68	N/A	μ s
-20 dB waveform duration	t_{20}	N/A	0.80	2.7	μ s
Centre Frequency	F_c	3.6	3.94	4.4	MHz
Relative Bandwidth @ -6dB	Δf_{rel}	25	47.1	55	%
Refraction Angle	α	68	70.1	72	°



DGS Curve, equivalent Flat Bottomed Hole curves (DAC)

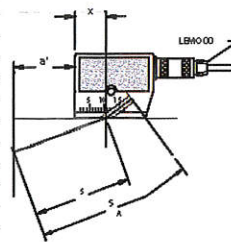


PARAMETER parameter/paramètre	NOMINAL nennwert/nominal	UPPER (+) ober bereich/supérieure	LOWER (-) unterer bereich/inférieure	UNIT meßeinheit/unité
f_c^1, f_c^2	4.0	4.4	3.6	MHz
$BW1, \Delta f_{rel}^2$	40	55	25	%
Z	75	100	50	Ω
Φ	60	80	40	°
N	30	34.5	26.5	mm
W_{ab}	1.6	1.8	1.4	mm
W_{be+} / W_{be-}	2.5 / 2.5	2.7 / 2.7	2.3 / 2.3	mm
a	9.0	9.0	8.9	mm
a_{eff}	8.6	8.8	8.4	mm
b	8.0	8.0	7.9	mm
b_{eff}	7.6	7.8	7.4	mm
$\alpha_{(255m/s)}$	70	72	68	°
$\Delta\alpha/\Delta T$	0.8	0.9	0.7	°/10° C
$lv_{(2740m/s)}$	8.0	9.0	7.0	mm
δ	0	+1	-1	°
e	0	+1	-1	mm
x	13	15	11	mm
γ_{be}	2.3	2.8	1.8	°
γ_{be}	9.3	10.3	8.3	°
$\gamma_{be+} / \gamma_{be-}$	5.1 / 4.2	5.6 / 4.7	4.6 / 3.7	°
M	2	n/a	n/a	mm
T_r	-20/+60	n/a	n/a	°C
Waveform duration ¹ , Echo width ² , Echobreite ² , Largeur de l'écho ²	-20dB	1.8	2.7	n/a
				us

1: ASTM E1065; 2: prEN 12668-2; 3: EN 1330-4:2000; 4: EN 583-2:2001

AM4R-8X9-70

AM4R HAS RIGHT LEMO CONNECTOR
AM4S HAS STRAIGHT LEMO CONNECTOR



$$s_v = 7.0 \pm 1 \text{ mm}$$

$$s = s_A - s_v$$

s_v is the sound field equivalent of delay path length (lv)

s_v entspricht im Schallfeld der Länge der Vorlaufstrecke lv

s_v est l'équivalent du champ acoustique de la longueur de la ligne de retard



