Ultrasonic unit

Model _____ Serial no. _____   Date _____

Search unit   By _____

Size _____ Type _____   ASNT Level _____

Frequency _____ MHz

No.	a dB Reading	b % Scale	c Corrected Reading	d dB Error	e Collective dB Error
	TABULATION CHART				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Find the average % screen values from column b disregarding the first three and last three tabulations. Use this percentage as $\%_2$ in calculating the Corrected Reading c.

The dB Error d is established by subtracting the Corrected Reading from the dB Reading a. Beginning with the tabulated dB Error d nearest to 0.0, collectively add the dB Error d values up and down placing the subtotals in column e (Collective dB Errors).

Moving vertically up and down from the Average % line, find the largest vertical span in which the top and bottom Collective dB Error figures remain at or below 2 dB. Count the number of vertical spaces of movement, subtract one, and multiply the remainder by six. This dB value is the acceptable range of the unit.

In order to establish the acceptable range graphically, Form J-2 should be used in conjunction with Form J-1 as follows:

(1) Apply the collective dB Error "e" values vertically on the horizontal offset coinciding with the dB reading values "a."

(2) Establish a curve line passing through this series of points.

(3) Apply a 2 dB high horizontal window over this curve positioned vertically so that the longest section is completely encompassed within the 2 dB Error height.

(4) This window length represents the acceptable dB range of the unit.

$$dB_2 = 20 \times Log\left(\frac{\%_2}{\%_1}\right) + dB_1$$

$\%_2$ (Average) _____ %

Total qualified range_____ dB to _____ dB = _____ dB   Total error _____ dB

FORM J-1   Total qualified range_____ dB to _____ dB = _____ dB   Total error _____ dB

Form J-1—Ultrasonic Unit Certification
[see 8.30.2.1(6), 8.30.2.1(9), 8.30.2.1(13), 8.30.2.1(14), 8.30.2.1(16), 8.30.2.2, and 8.30.2.3]