



**1 Scope**

Model 400ER080 is a miniature air ultrasonic transducer housed in a one piece of stainless of stainlesssteel of SUS316, which is highly resist to corrosive environment.  
This transducer has a feature of broad beam angle of around 110° and free of side lobes.

**2 Part Number**

400ER080 Air Ultrasonic Ceramic Transducers

**3 Dimension**

As per Figure 1

**4 Specification**

(rated at temperature 25±3°C, 45 to 60% RH, unless otherwise noted)

	Items	Specification	Remarks
4-1	Center Frequency (Fc)	40.0±3.0KHz	
4-2	Sound Pressure Level	100dB	At Fc @ 0dB re 0.0002μbar Measured at 30cm 10Vrms Sine Wave input Figure 2
4-3	Sensitivity	-80dB	At Fc @ 0dB=1 Volt/μbar Detail see attached Figure 3
4-4	Bandwidth	2.0KHz	-6dB
4-5	Capacitance	1900±20%pF	Measured at 1KHz
4-6	Total Beam Angle	110°±10°	-6dB
4-7	Operation Temperature		-30° to +70°C
4-8	Storage Temperature		-40° to +80°C



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## 5 Environmental Characteristics

- 5-1 Overall echo sensitivity shall not change by more than  $\pm 3$ dB in the temperature range of  $-30^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ , at a relative humidity of  $\pm 50\%$
- 5-2 Overall echo sensitivity shall not change by more than  $\pm 3$ dB in the humidity range of 10% to 90% at the temperature of  $25^{\circ}\text{C}$
- 5-3 Overall echo sensitivity shall be within  $\pm 3$ dB of the specified values after the device is subjected to any or all of the belows
  - 5-3-1 Operation at 90% relative humidity and  $40^{\circ}\text{C}$  for 100 hours, followed by a normalization period of 24 hours at 30% and  $25^{\circ}\text{C}$
  - 5-3-2 Storage at  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  for 24 hours followed by a normalization period of an hour at  $25^{\circ}\text{C}$
  - 5-3-3 Vibration at 10 to 55Hz, 1.5mm amplitude. 1 minute sweep. X, Y, Z, 3 each axis for 3 hours.
  - 5-3-4 Shock: After impact of 50G is applied following. X, Y, Z, 3 axis /3 cycle / each direction.
  - 5-3-5 Drop: After free drop from 1 meter height onto concrete floor, 3 times

## 6 Mechanical Characteristics

Lead strength

To pull longitudinally 1.0 kgf min.

To push longitudinally 1.0 kgf min.

## 7 Warranty

- 7-1 Warranty period is one year after delivery
- 7-2 Defective transducers attributable to manufacturer's responsibility shall be replaced for free, during the warranty period. However, following cases are out of the this replacement.
  - 7-2-1 Unsuitable handling or misuse by user.
  - 7-2-2 Modification or repair by user.
  - 7-2-3 Any other cases not responsible for manufacturer such as natural calamity, accident, etc.

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**This warranty covers only replacement. Any loss derived from failure or malfunction of the transducer, or cost to replace is excluded from this warranty.**

Dimensions: unit mm

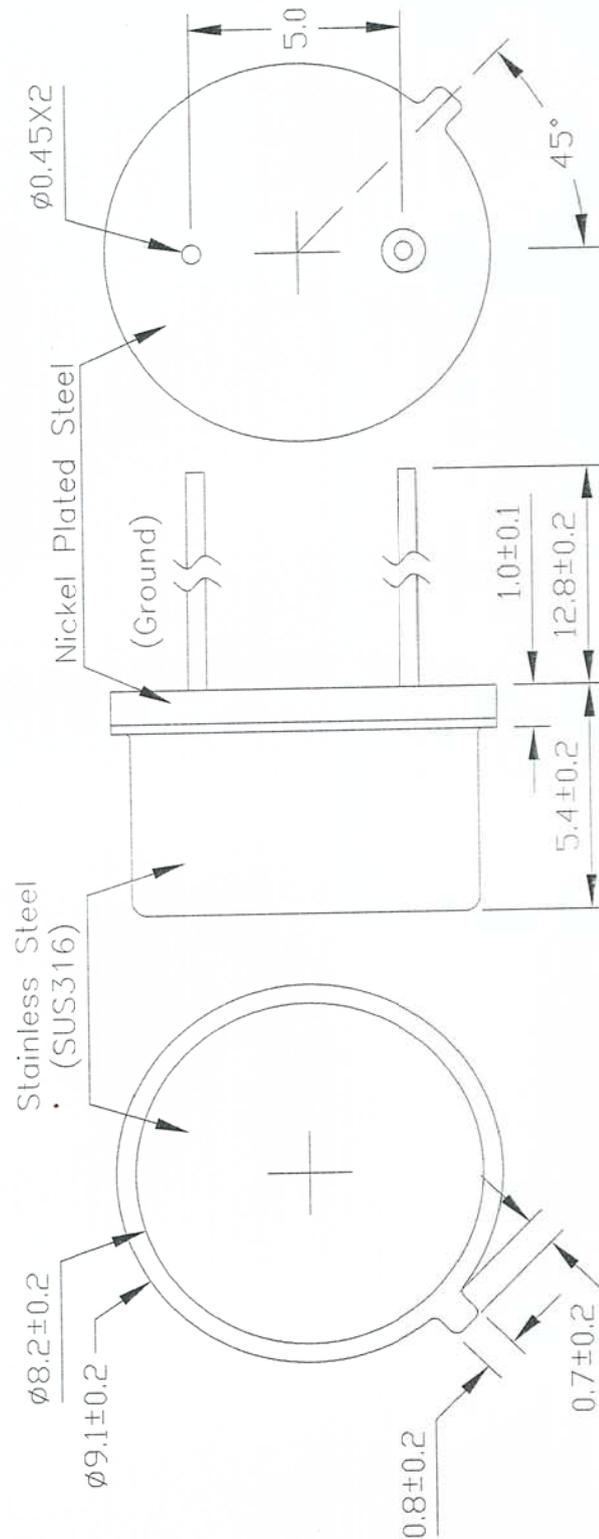


Figure 1

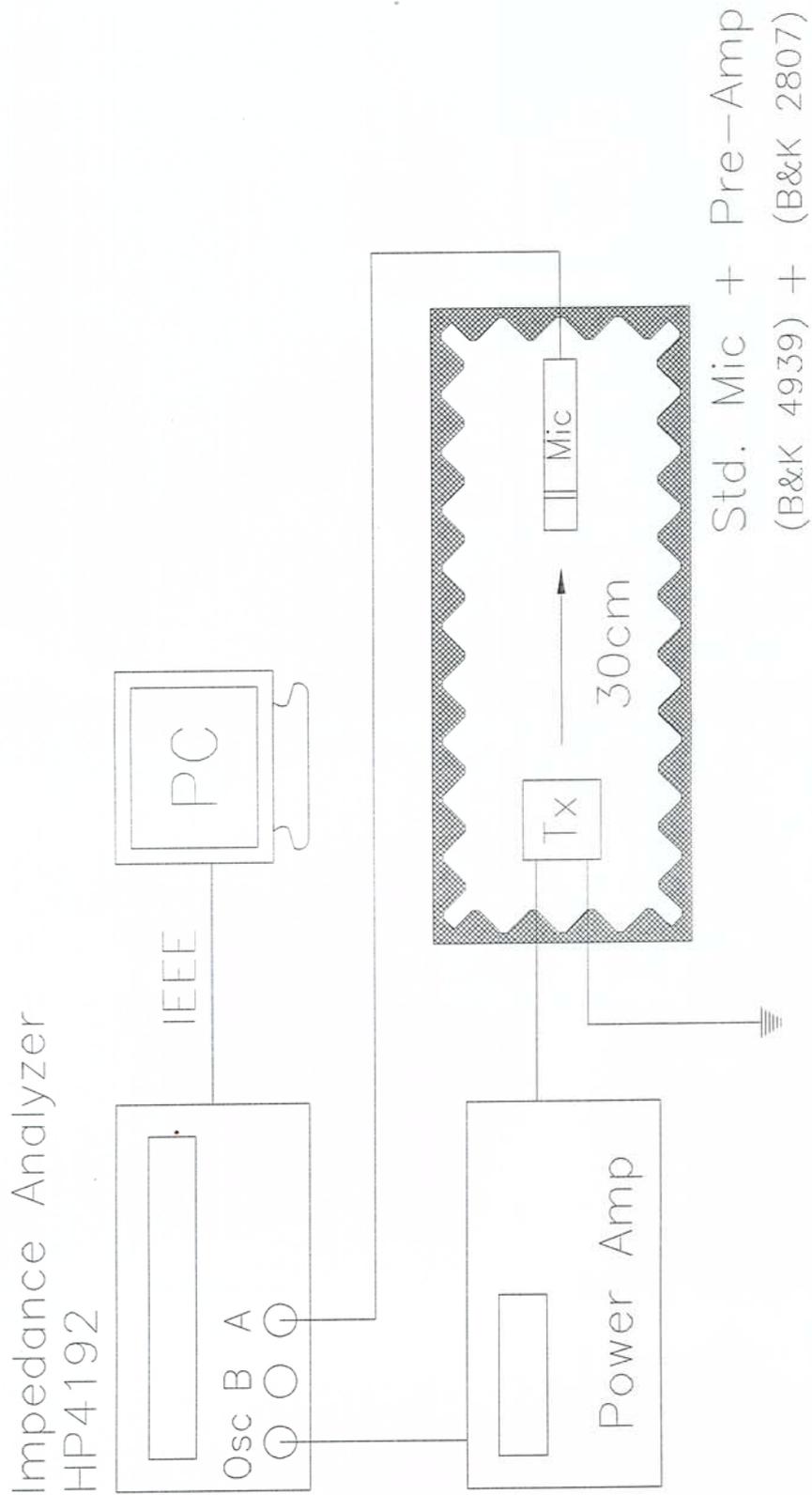


Figure 2

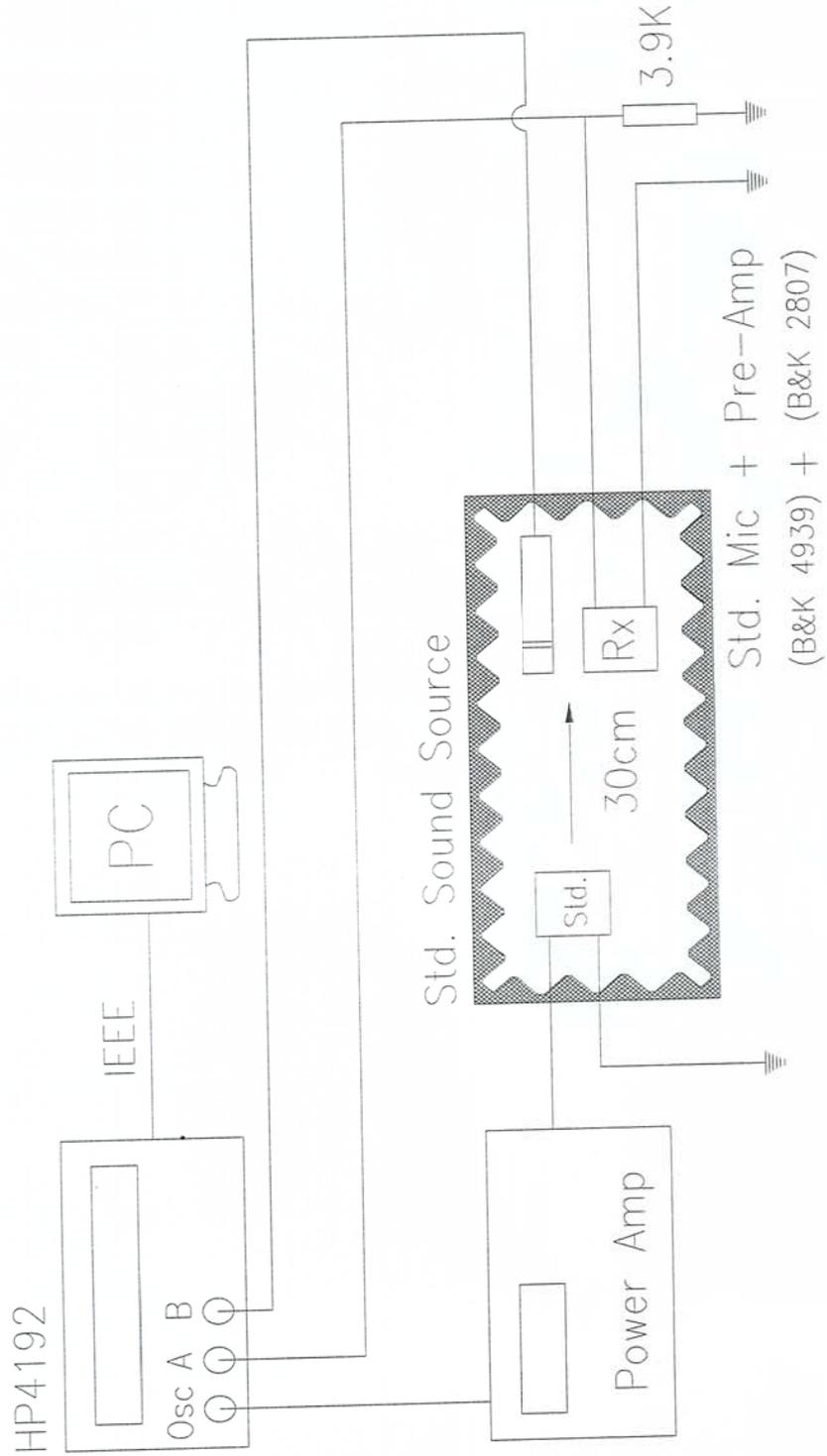


Figure 3

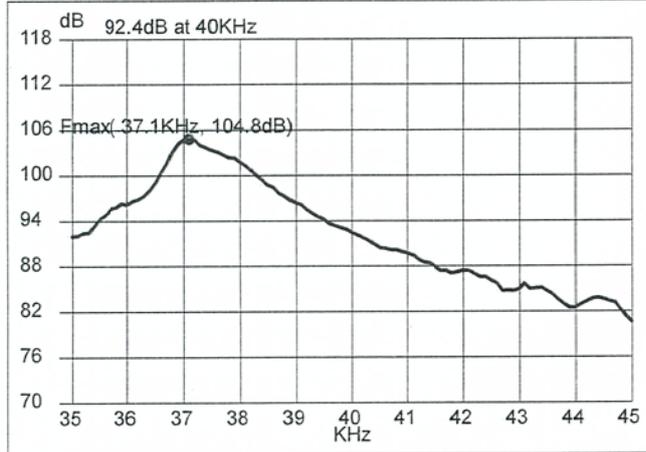
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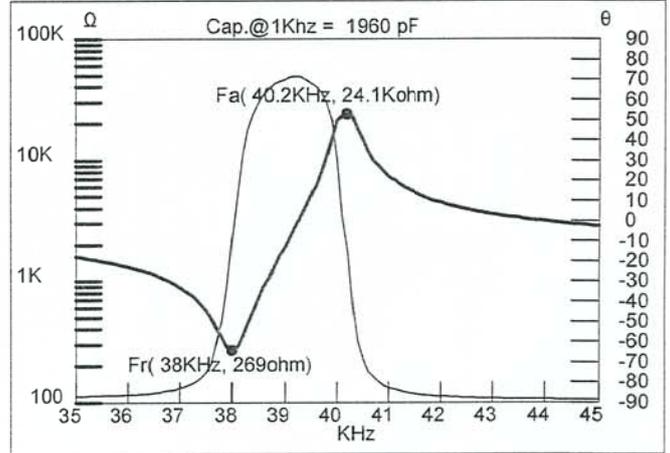
Model Number: 400ER080

Sample Number: 1

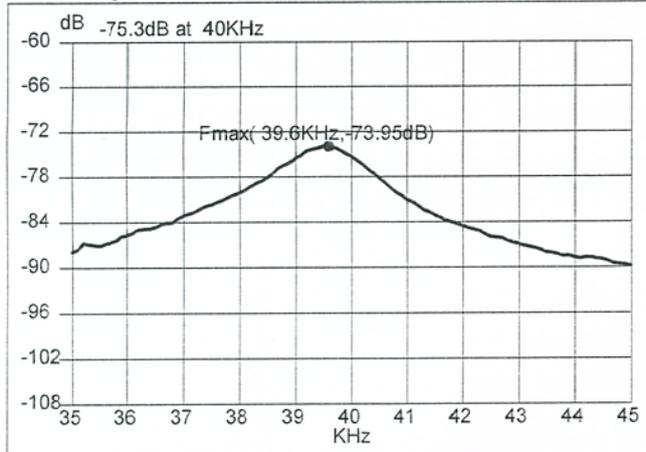
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

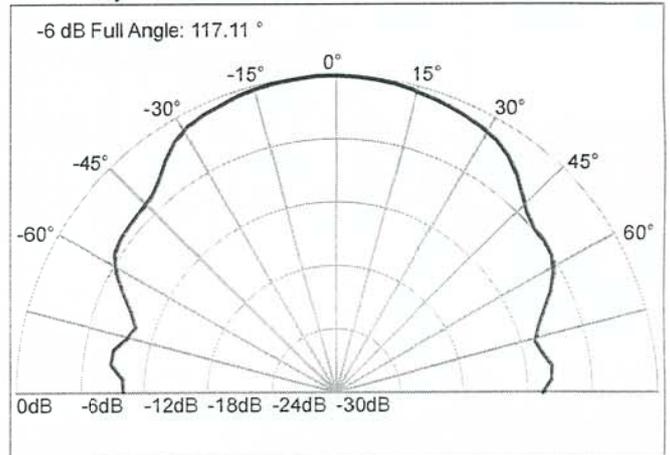
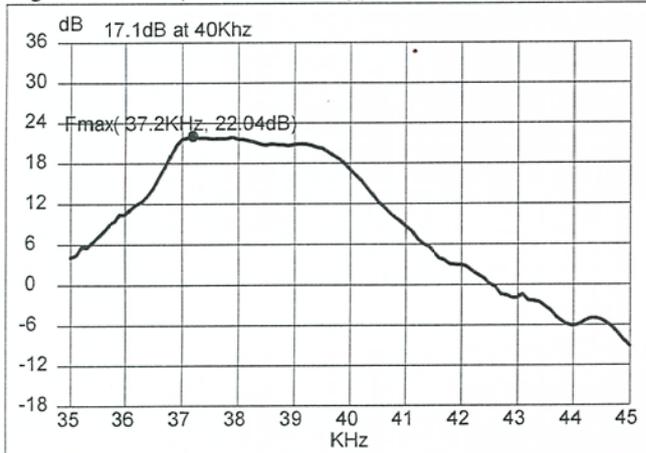


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)

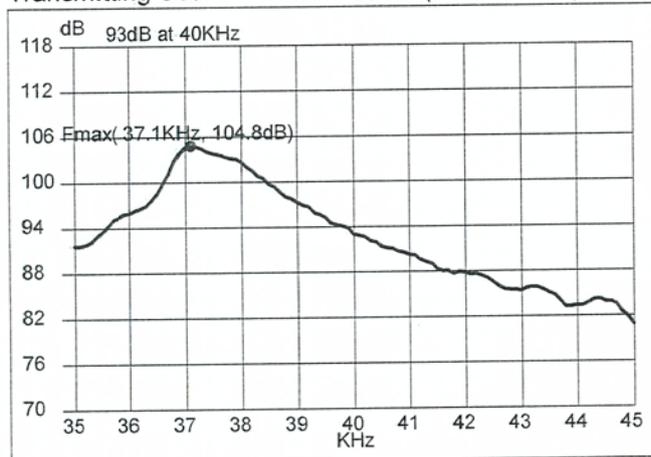


**Test Report:**

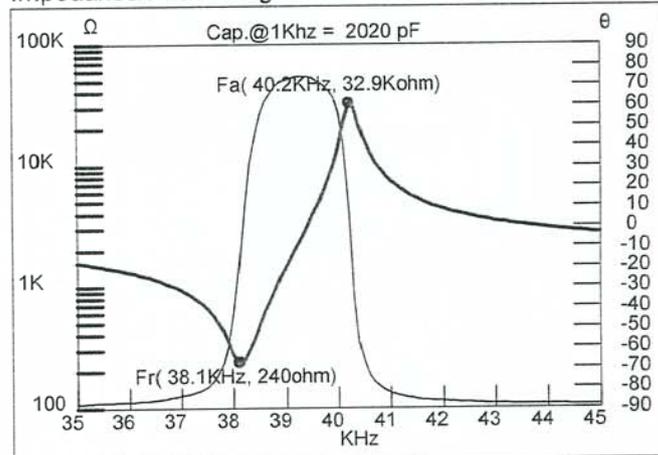
Model Number: 400ER080

Sample Number: 2

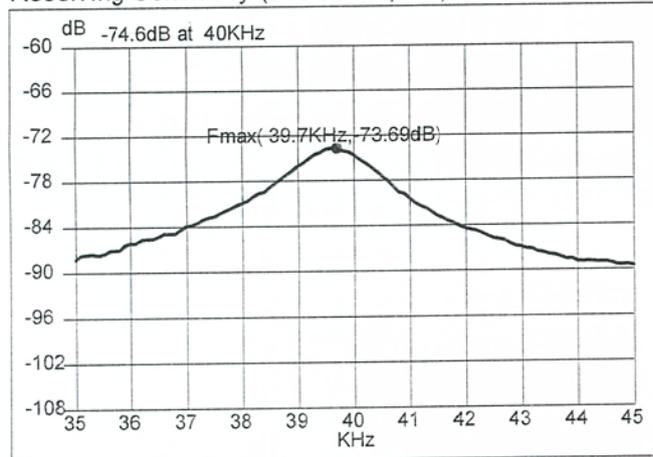
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Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

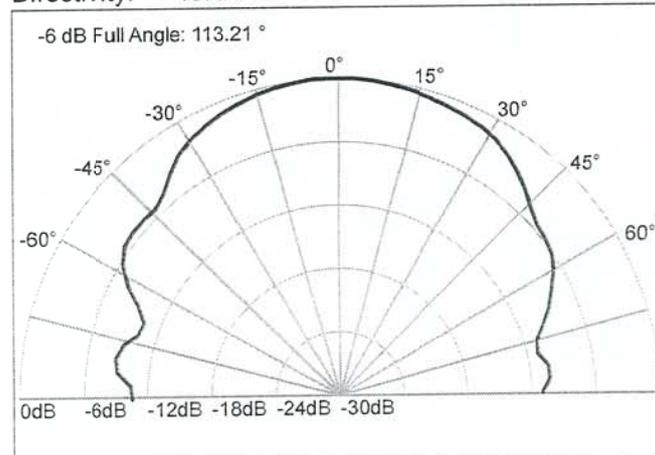
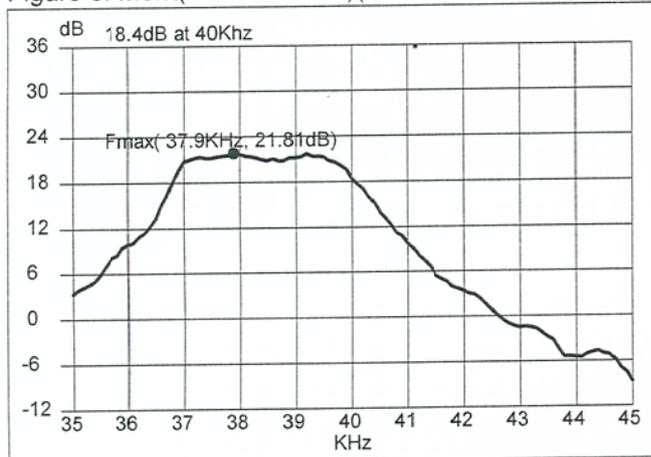


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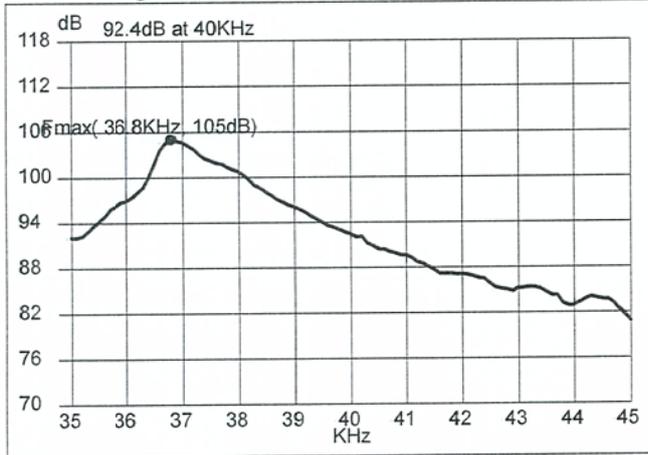


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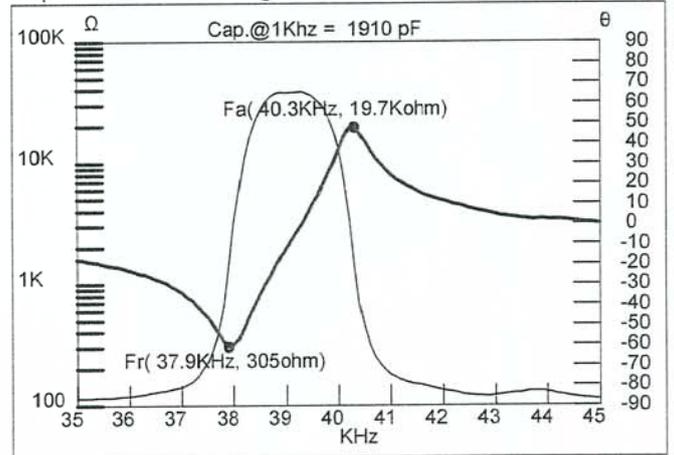
Model Number: 400ER080

Sample Number: 3

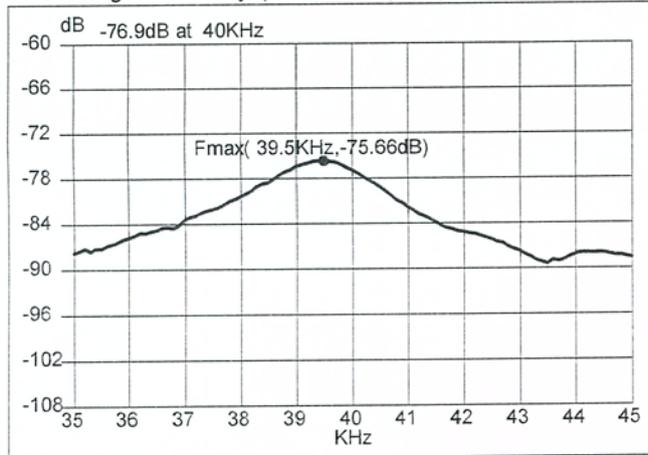
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

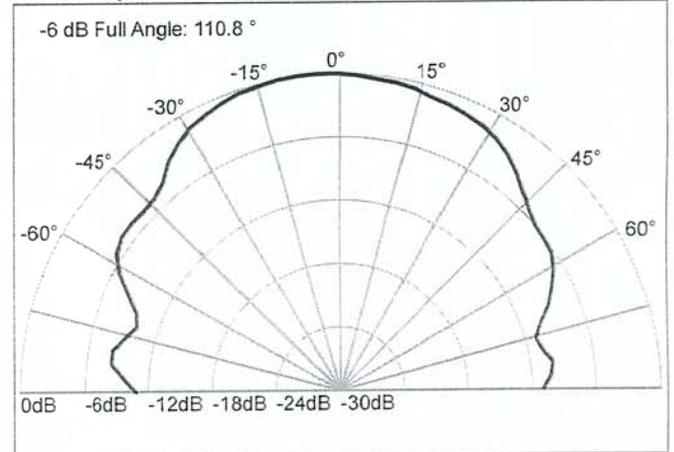
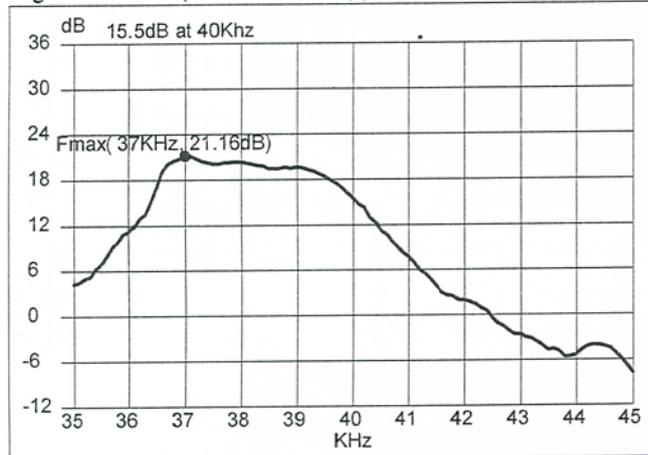


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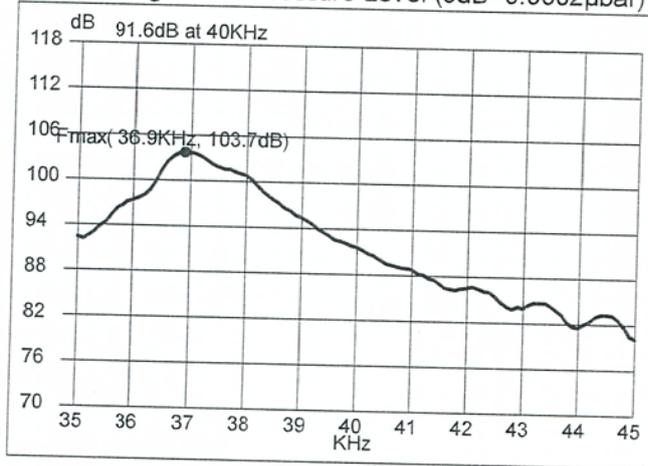
**Test Report:**

Model Number: 400ER080

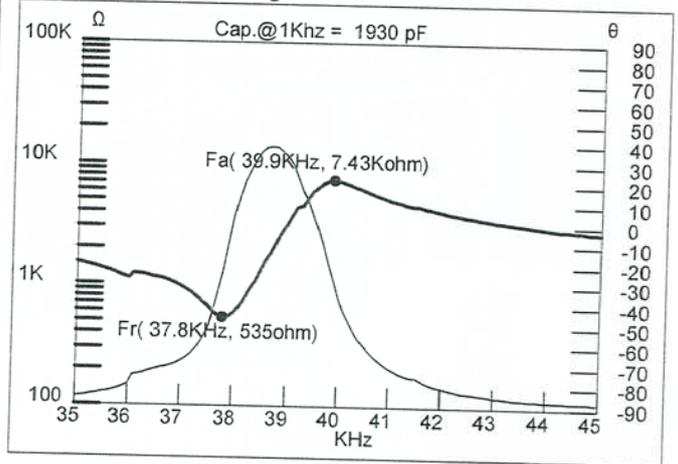
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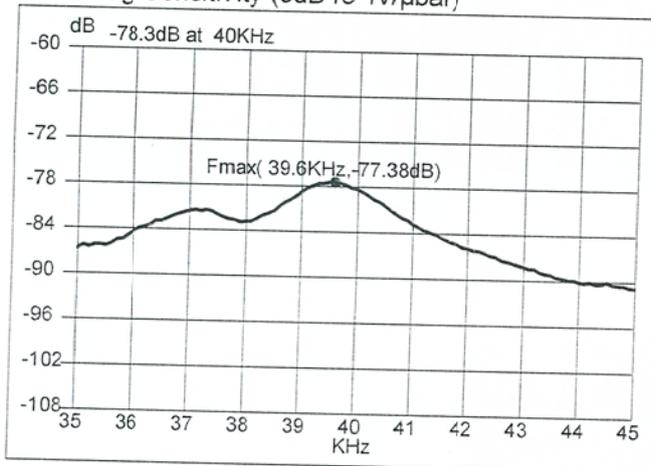
**Transmitting Sound Pressure Level (0dB=0.0002μbar)**



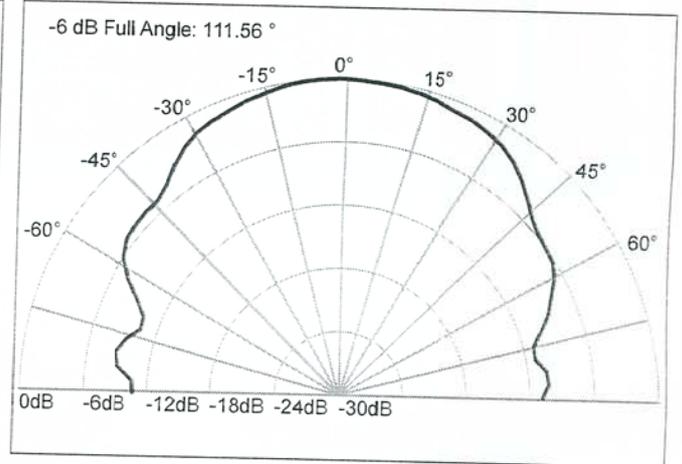
**Impedance/Phase Angle**



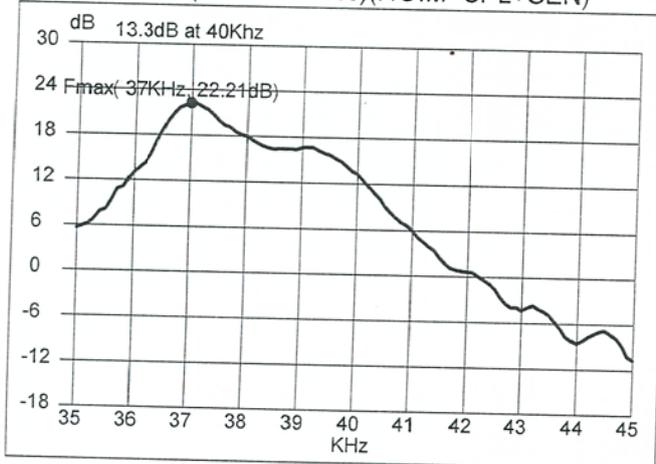
**Receiving Sensitivity (0dB re 1v/μbar)**



**Directivity: 40KHz**



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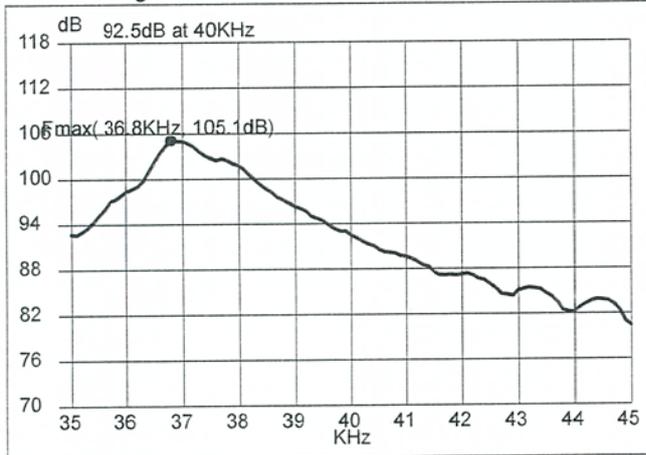


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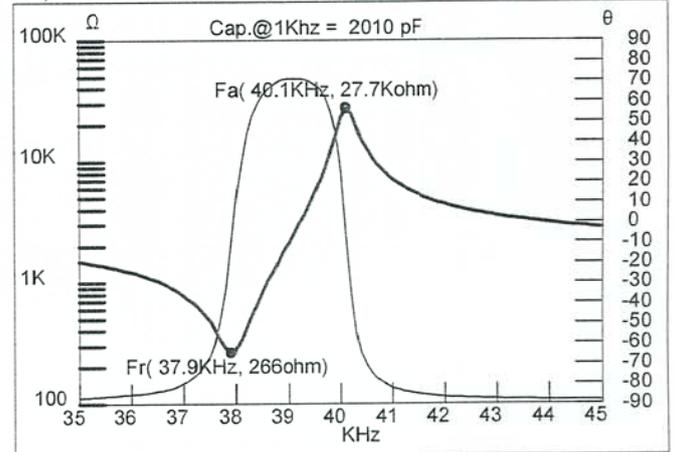
Model Number: 400ER080

Sample Number: 5

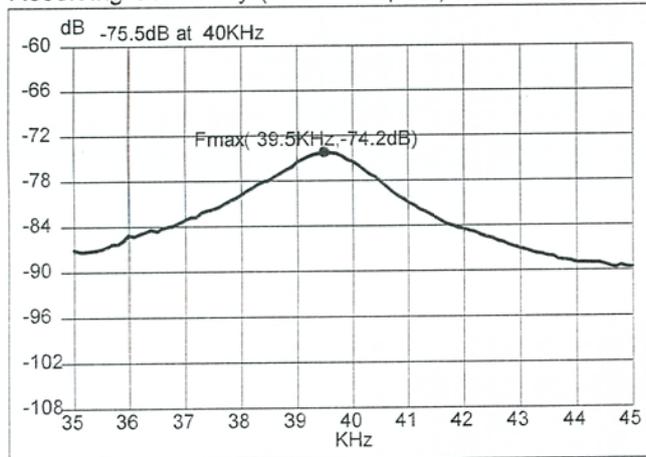
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

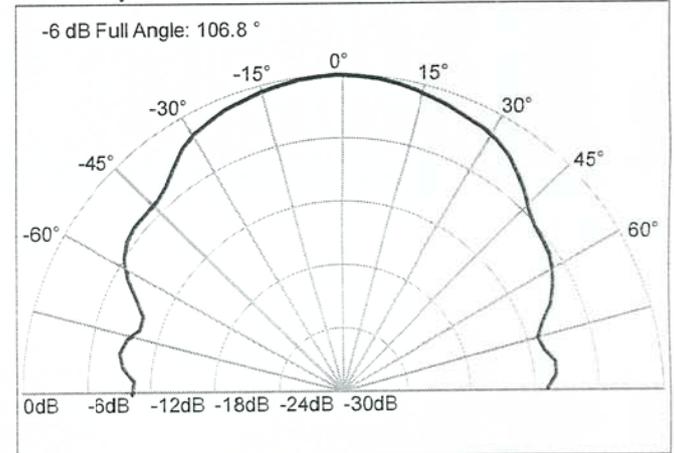
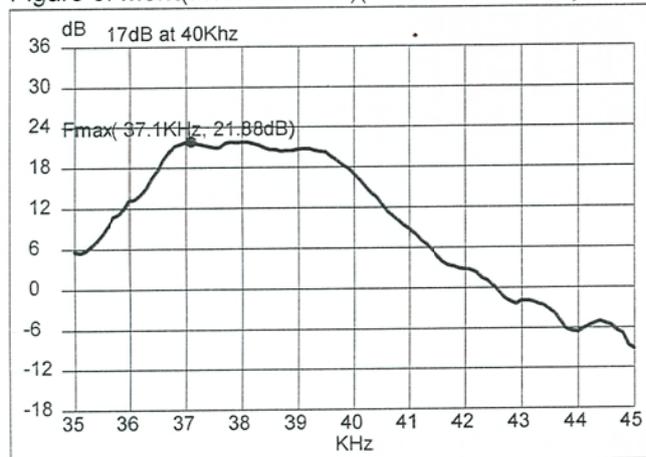


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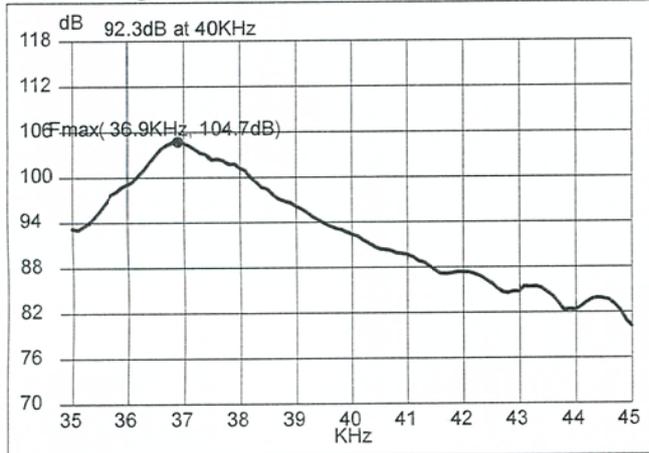
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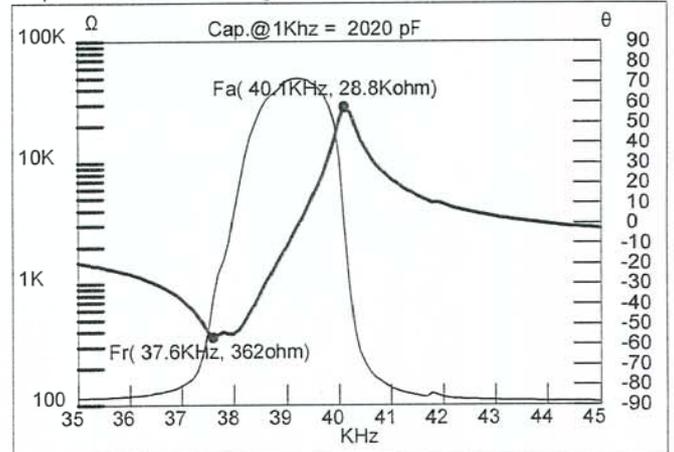
Model Number: 400ER080

Sample Number: 6

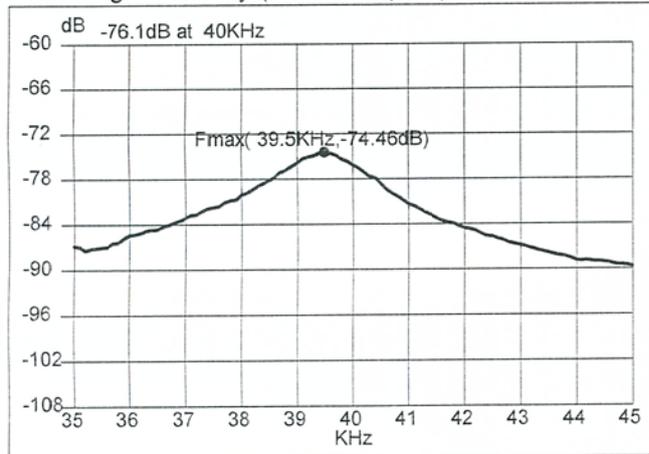
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

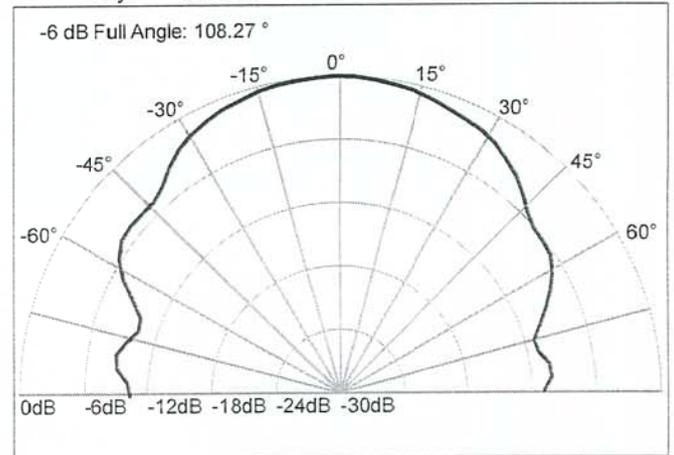


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