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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℃, 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=1Volt/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

5 Environmental Characteristics

5-1 Overall echo sensitivity shall not change by more than ±3dB in the temperature range of -30°C to 70°C, at a relative humidity of ±50%

5-2 Overall echo sensitivity shall not change by more than ±3dB in the humidity range of 10% to 90% at the temperature of 25°C

5-3 Overall echo sensitivity shall be within ±3dB 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°C for 100 hours, followed by a normalization period of 24 hours at 30% and 25°C

5-3-2 Storage at -40°C to + 80°C for 24 hours followed by a normalization period of an hour at 25°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.

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

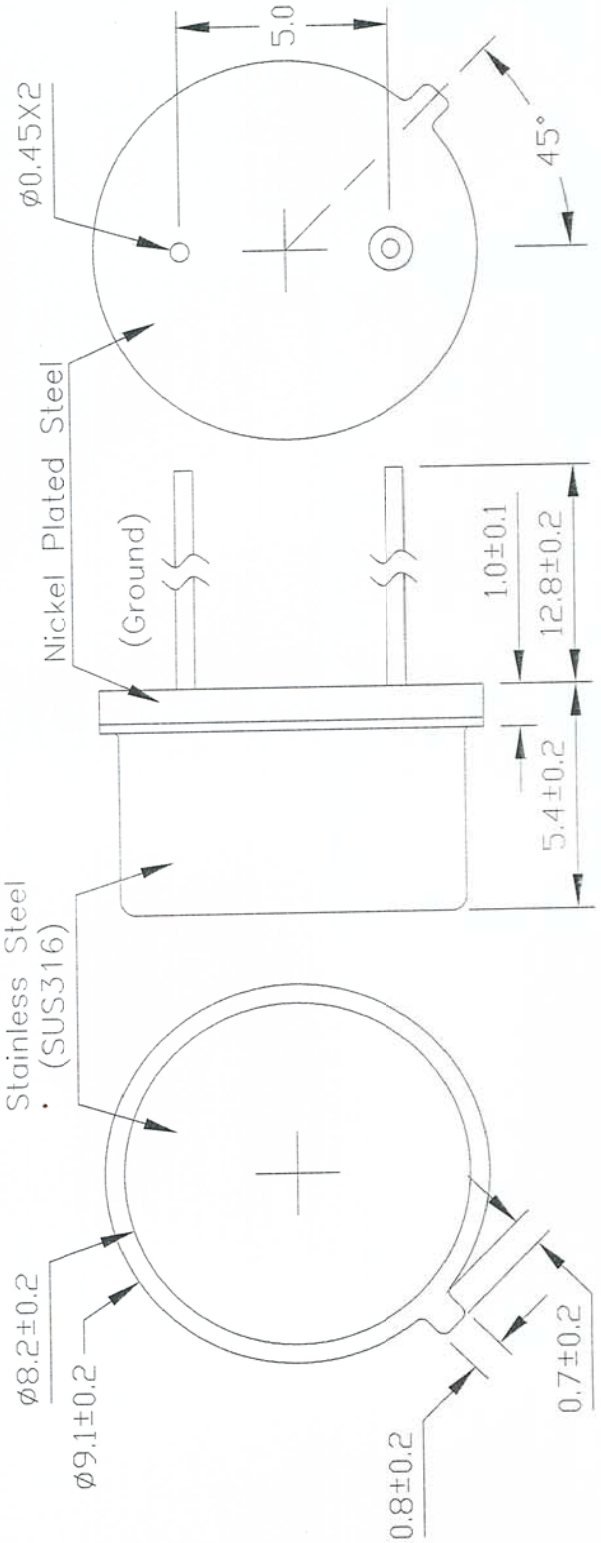


Figure 1

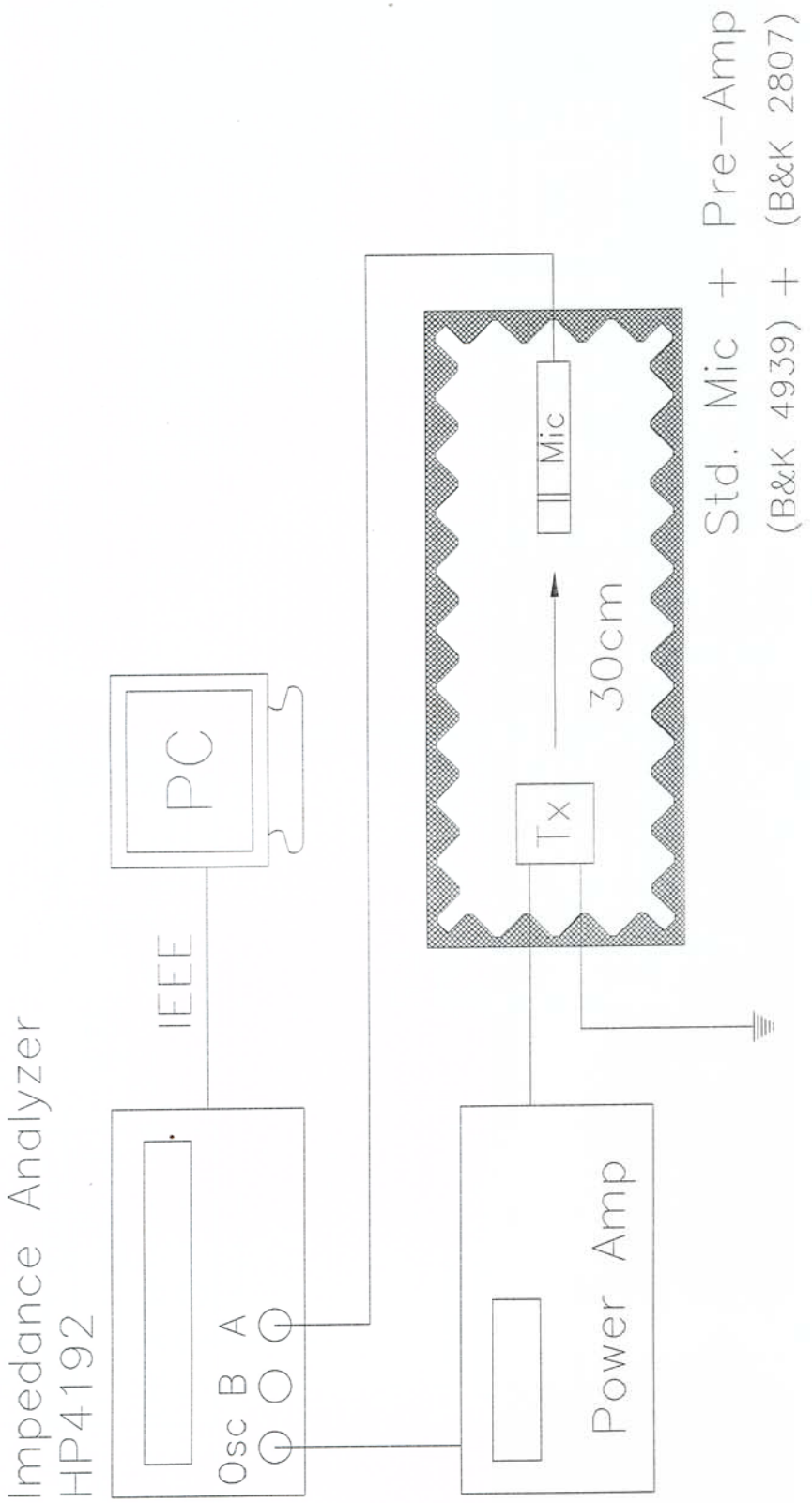

Impedance Analyzer
HP4192
IEEE
PC
Osc B A
Power Amp
Tx
30cm
Mic
Std. Mic + Pre-Amp
(B&K 4939) + (B&K 2807)

Figure 2

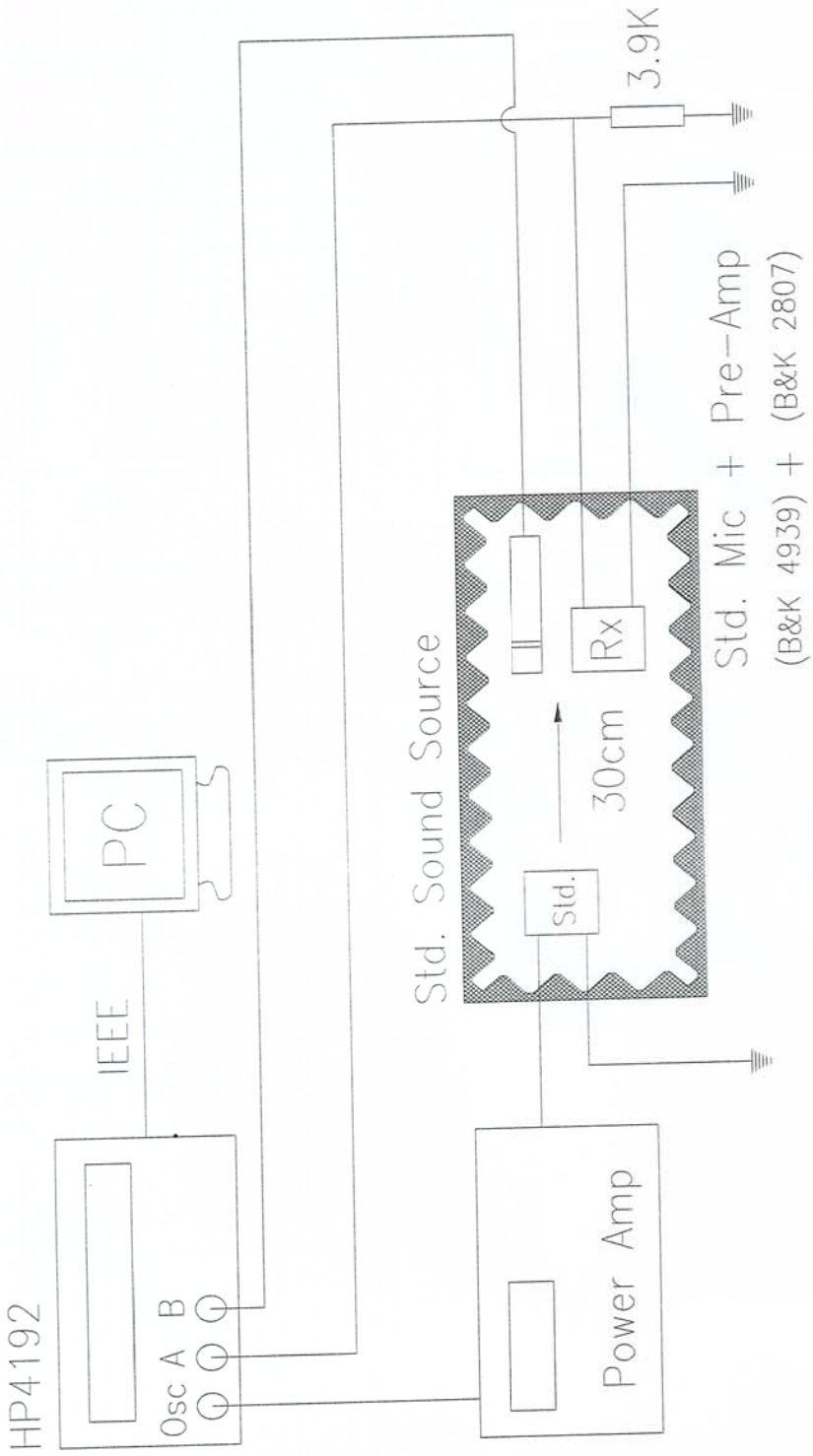

3.9K
Std. Mic + Pre-Amp
(B&K 4939) + (B&K 2807)
Rx
Std. Sound Source
30cm
Std.
PC
IEEE
HP4192
Osc A B
Power Amp

Figure 3

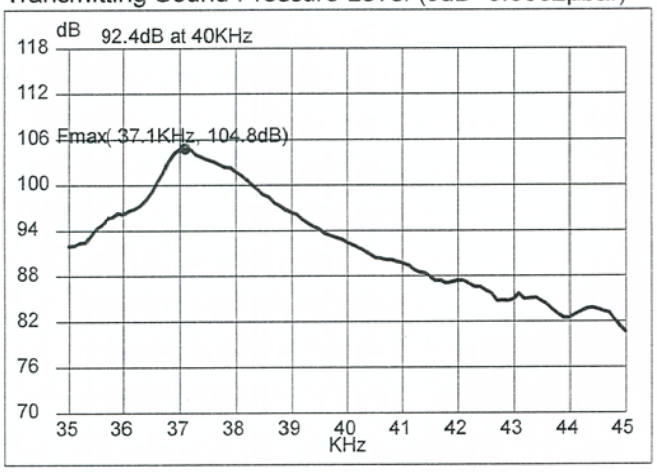
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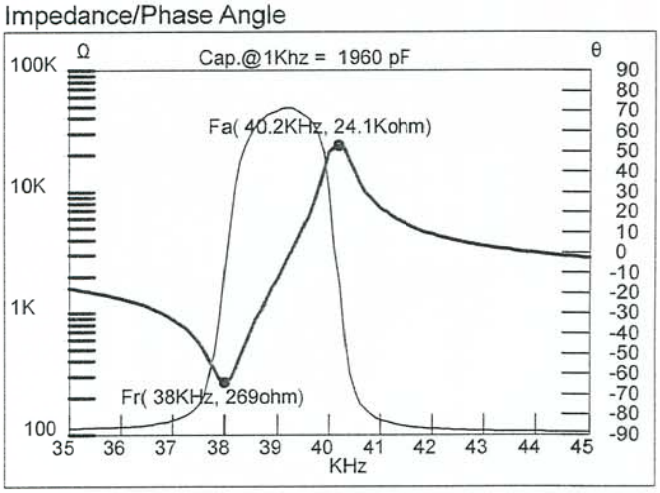
Model Number: 400ER080

Sample Number: 1

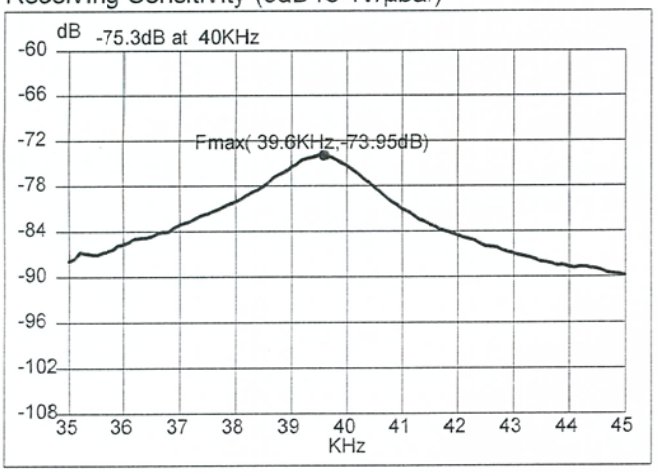
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

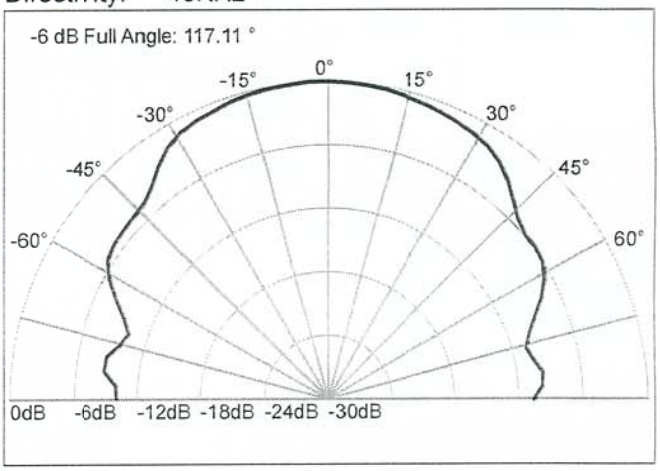
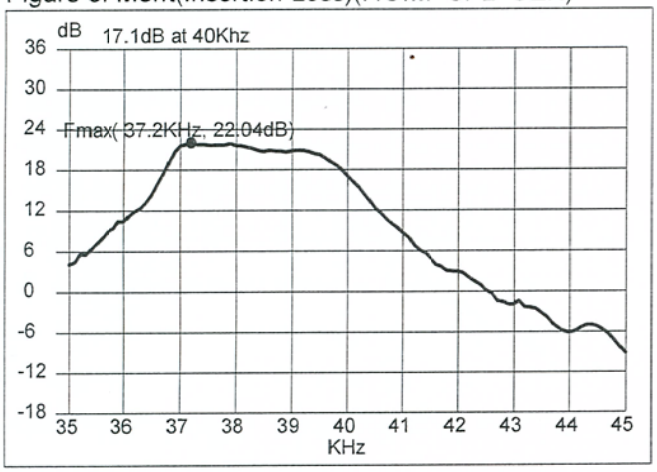


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)



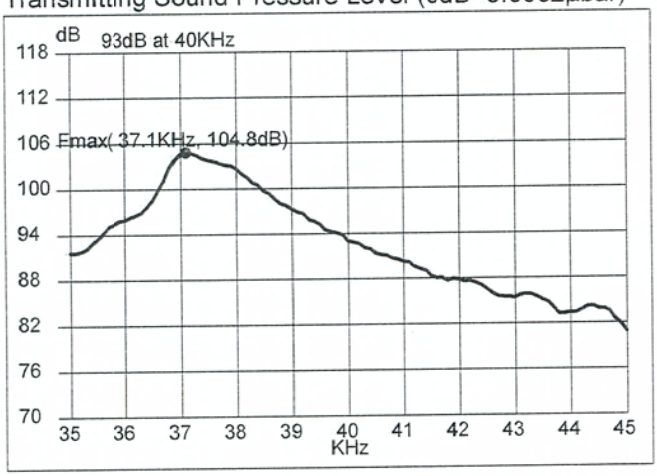
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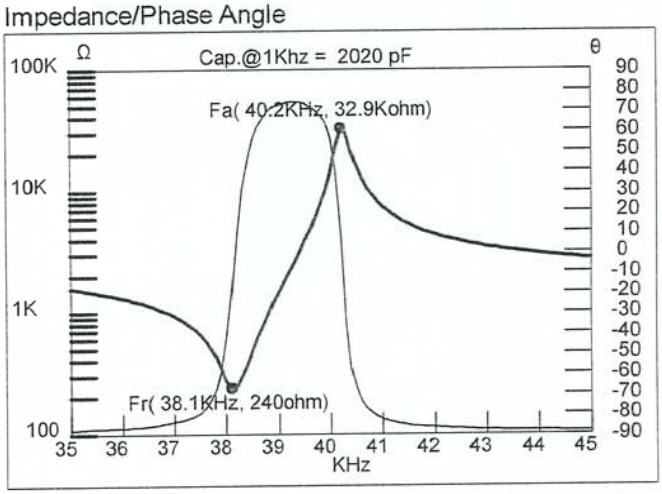
Model Number: 400ER080

Sample Number: 2

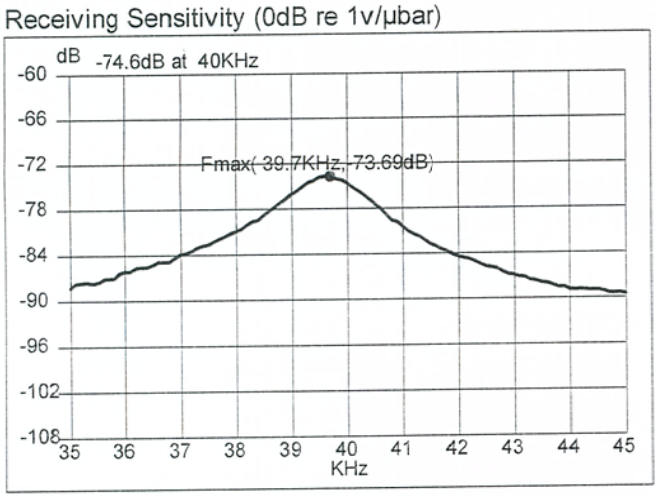
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

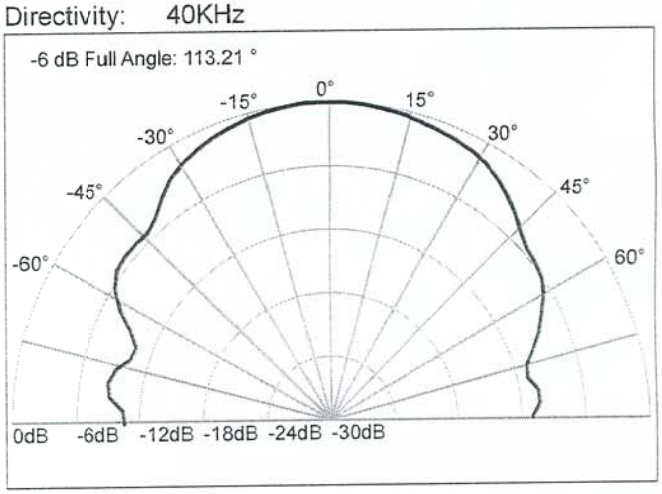
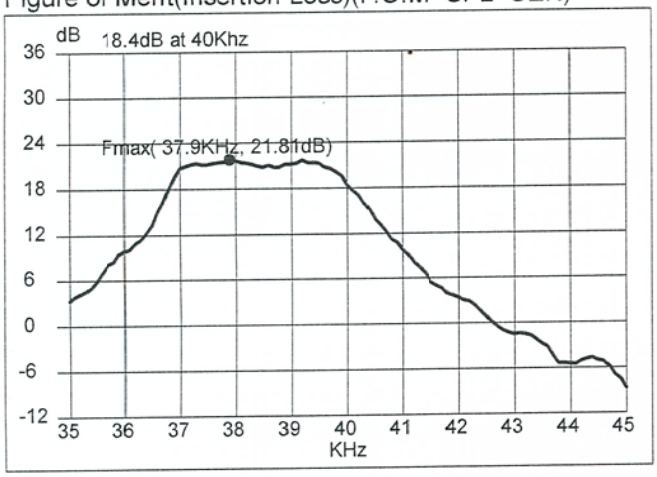


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)



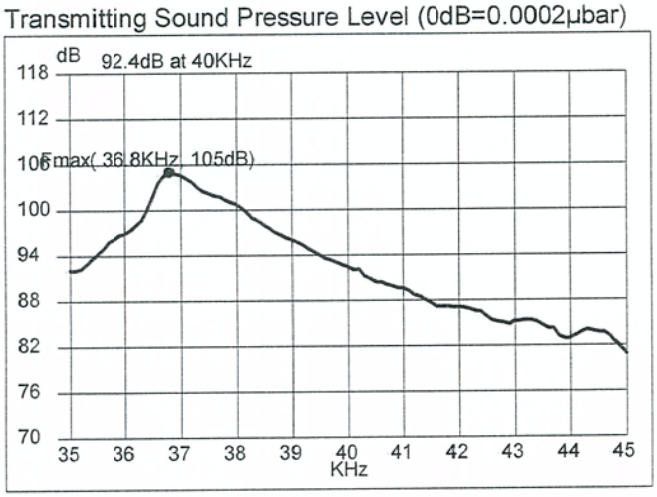
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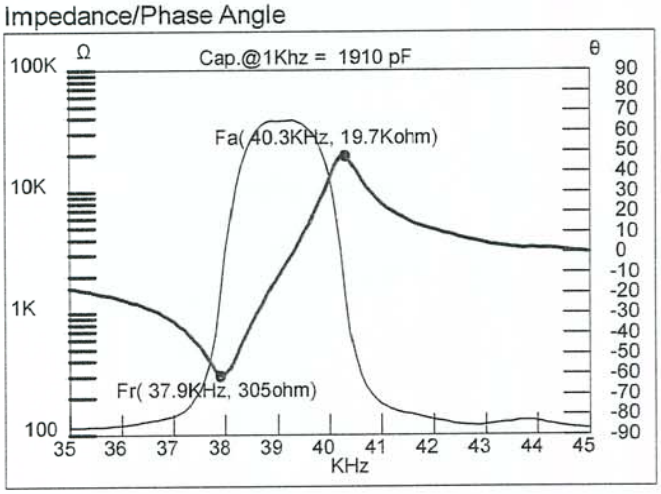
Model Number: 400ER080

Sample Number: 3

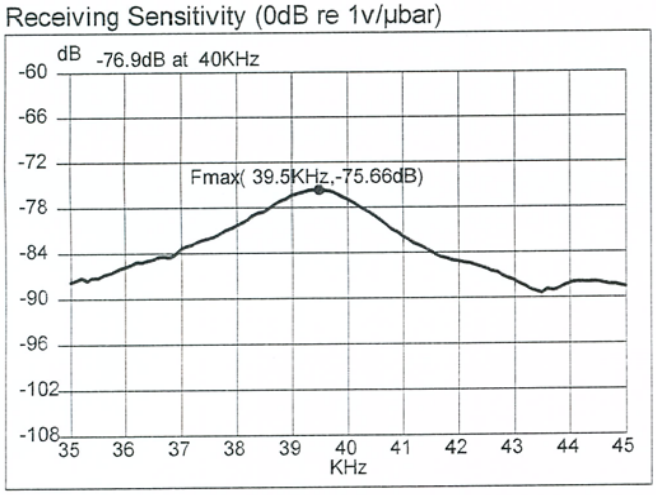
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

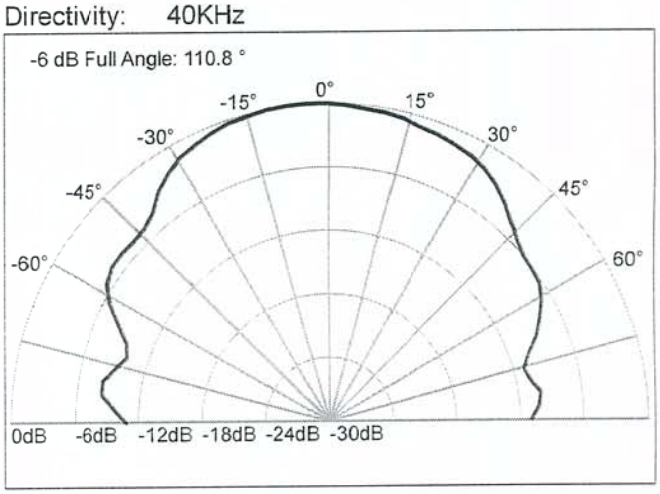
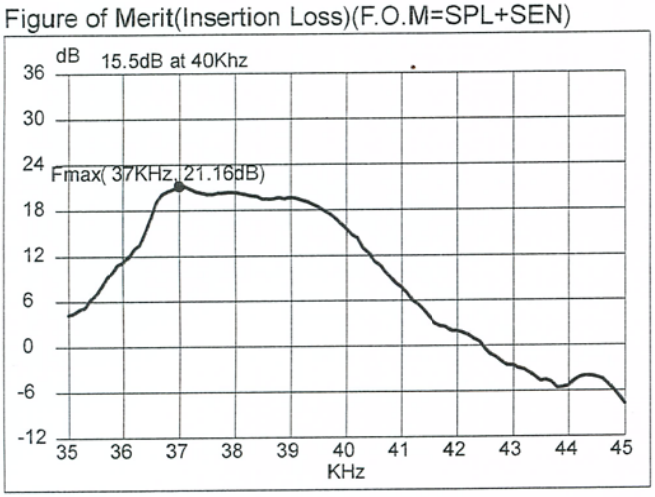


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)



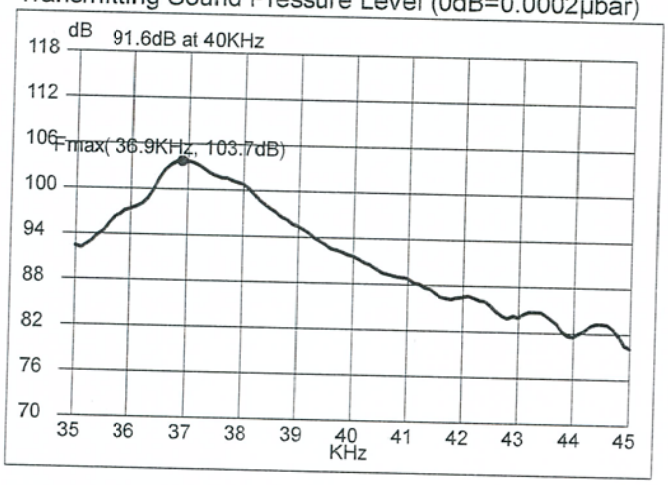
Test Report:

Model Number: 400ER080

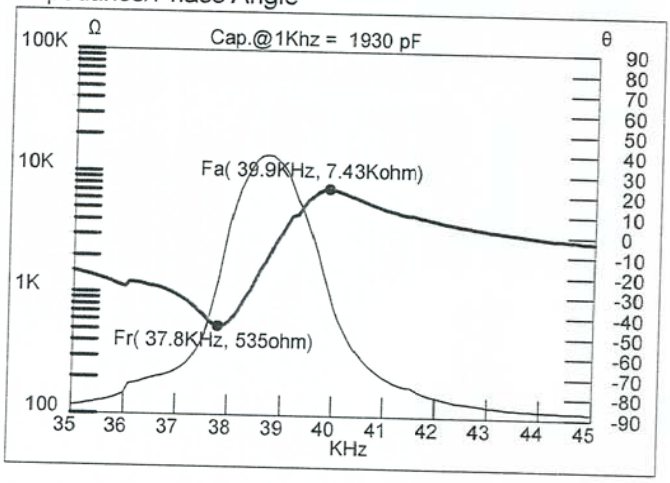
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Sample Number: 4

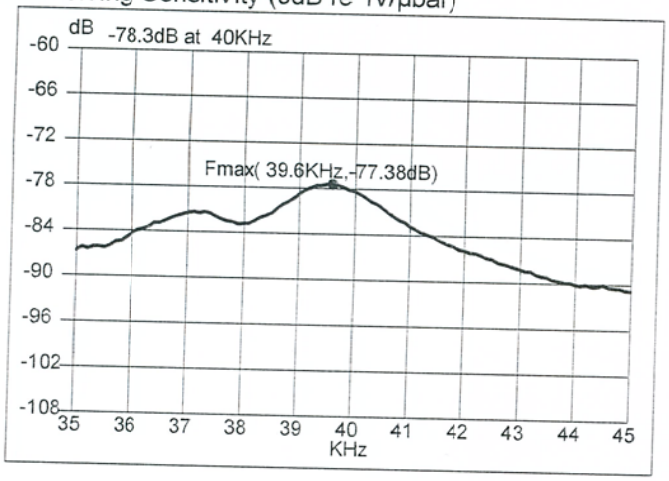
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

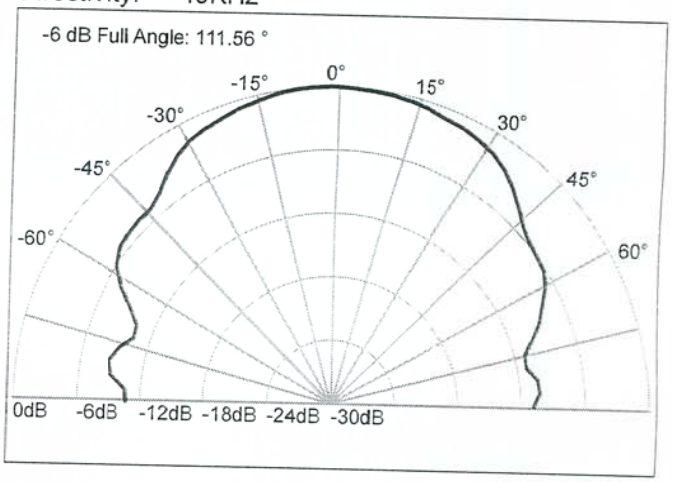
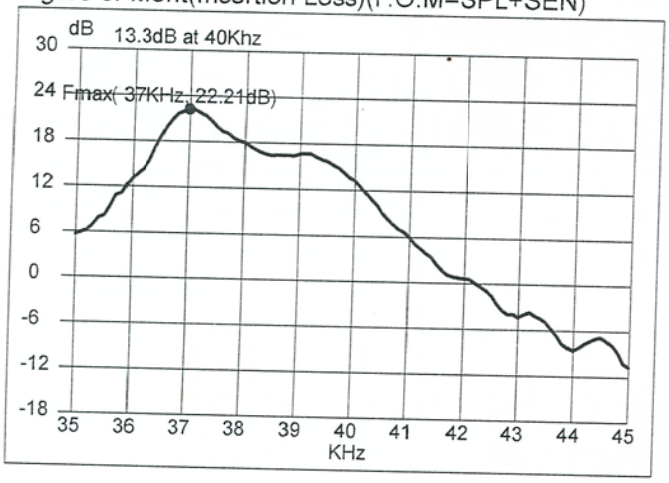


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)



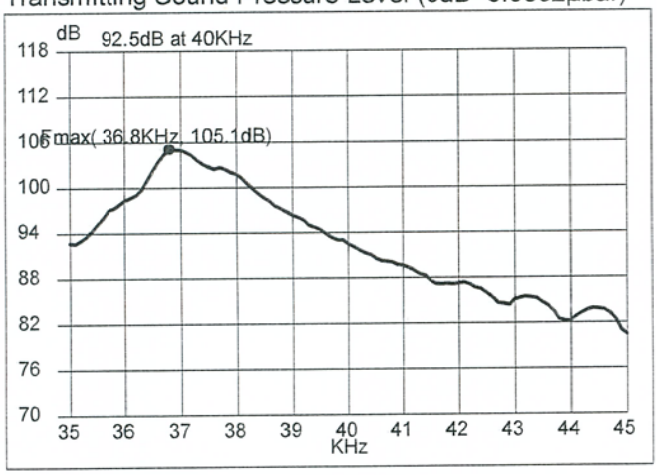
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Test Report:

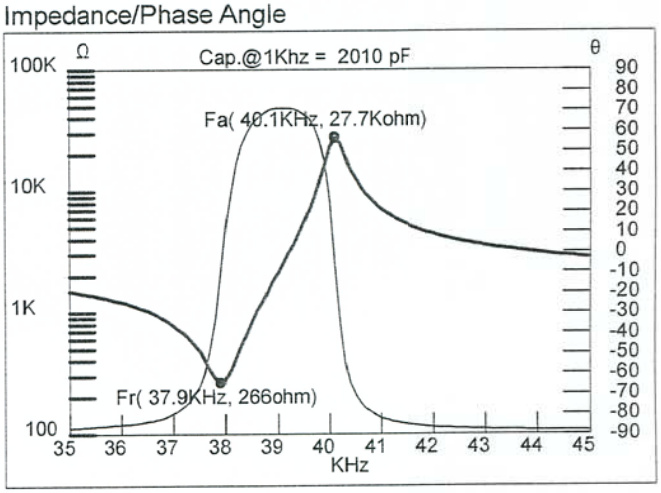
Model Number: 400ER080

Sample Number: 5

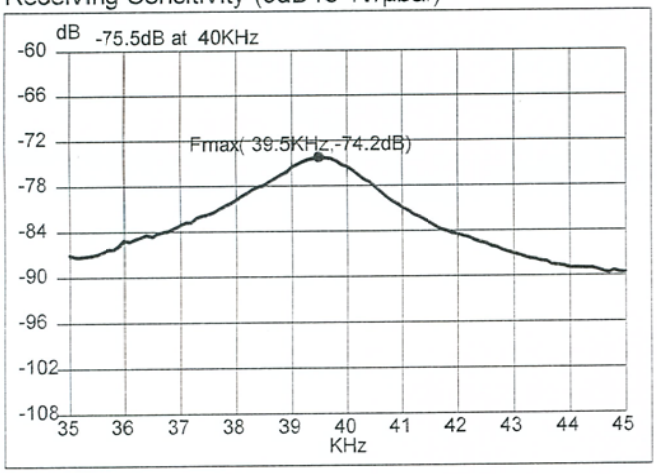
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

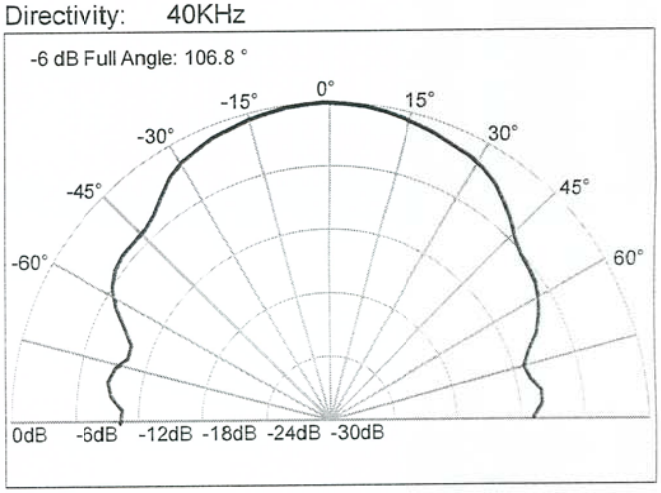
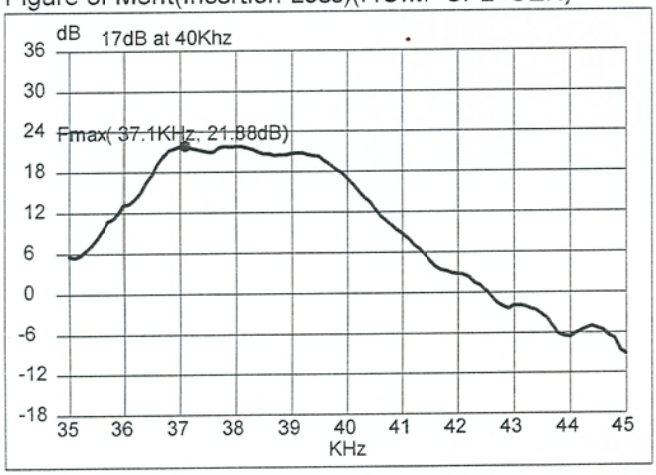


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)



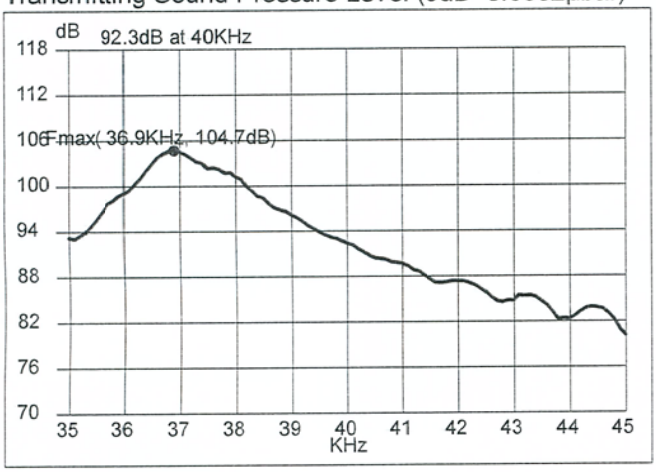
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Test Report:

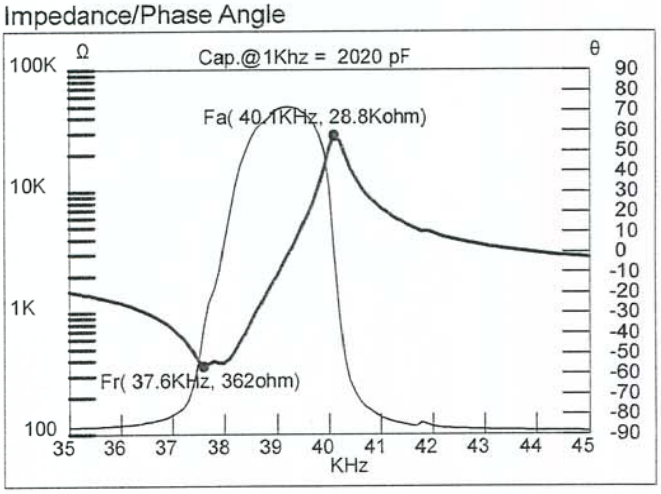
Model Number: 400ER080

Sample Number: 6

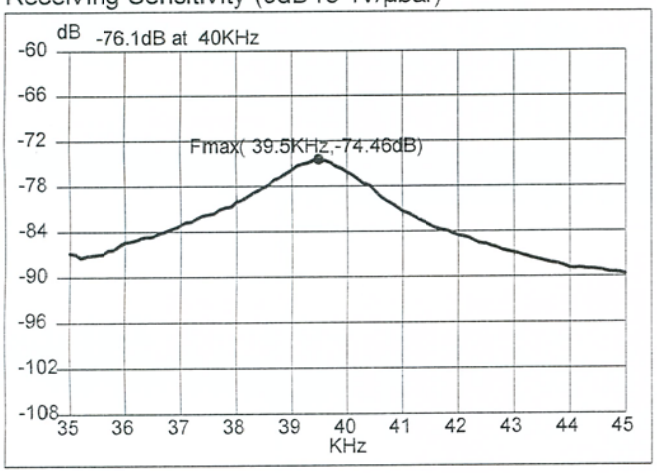
Transmitting Sound Pressure Level (0dB=0.0002μbar)



Impedance/Phase Angle



Receiving Sensitivity (0dB re 1v/μbar)



Directivity: 40KHz

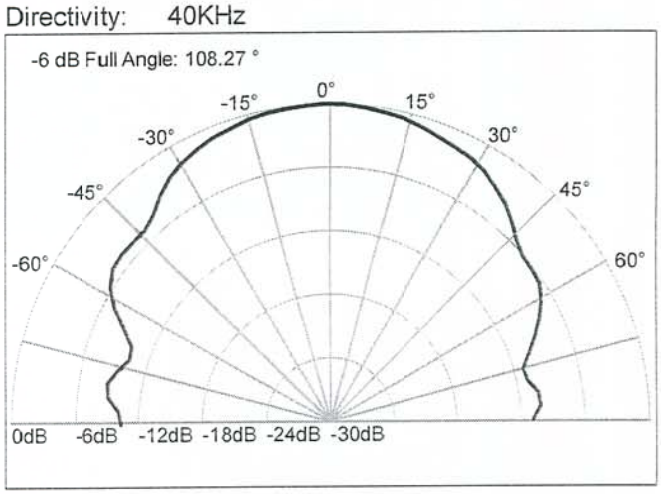


Figure of Merit(Insertion Loss)(F.O.M=SPL+SEN)

