中国计量科学研究院
National Institute of Metrology

National standards report from NIM, China

Part I: Acoustics & Ultrasound

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Current status of national standards

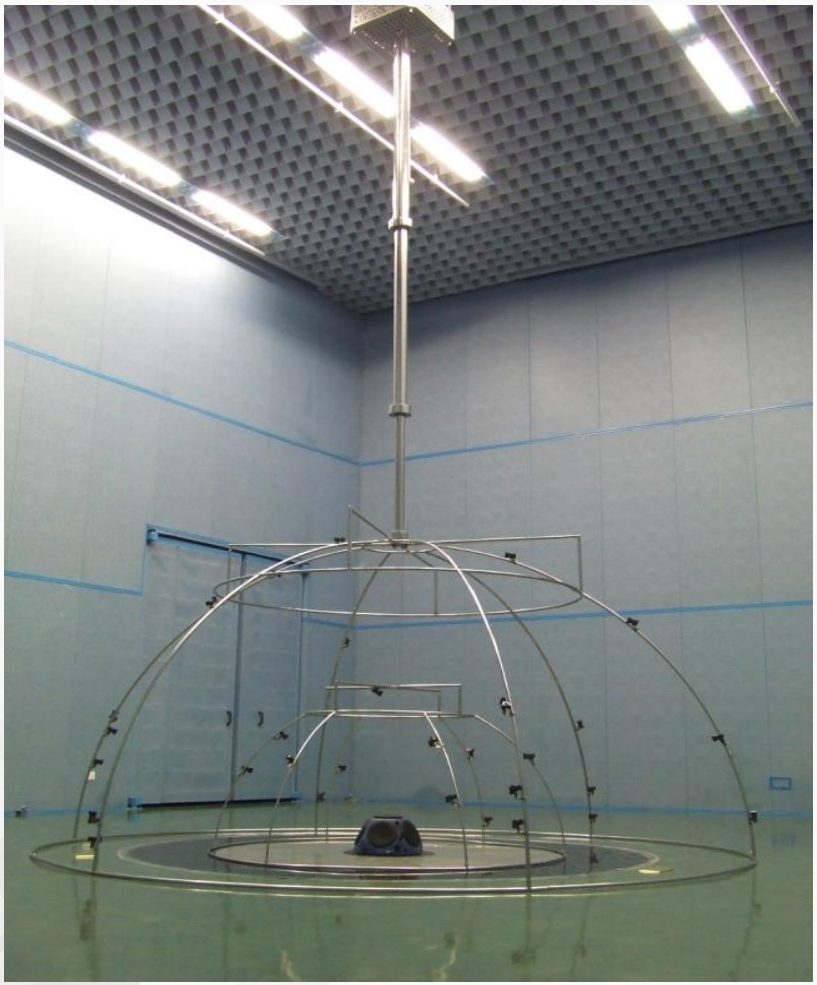
Coupler Reciprocity National Standard: 2 Hz ~ 31.5 kHz

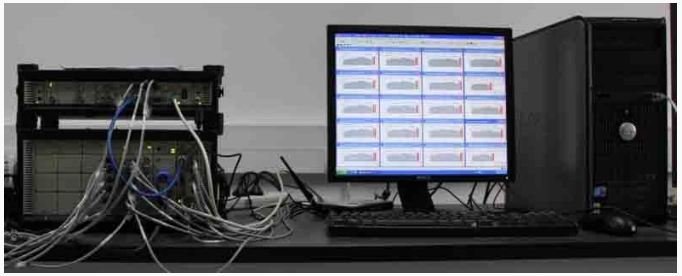
Free-field Reciprocity National Standard: 1 KHz ~ 25 kHz

Current status of national standards

Low Frequency Standard - (0.01 Hz ~ 20 Hz, 90 dB ~ 140dB)

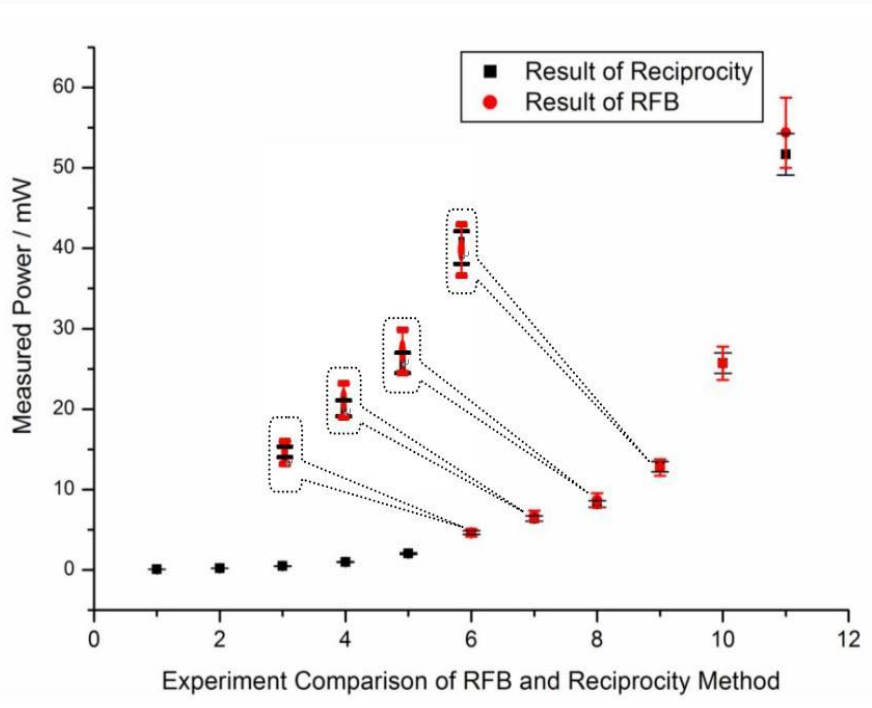
Current status of national standards





Sound Power Standard : 50 Hz ~ 20 kHz U=1.8 dB (k=2)

Current status of national standards

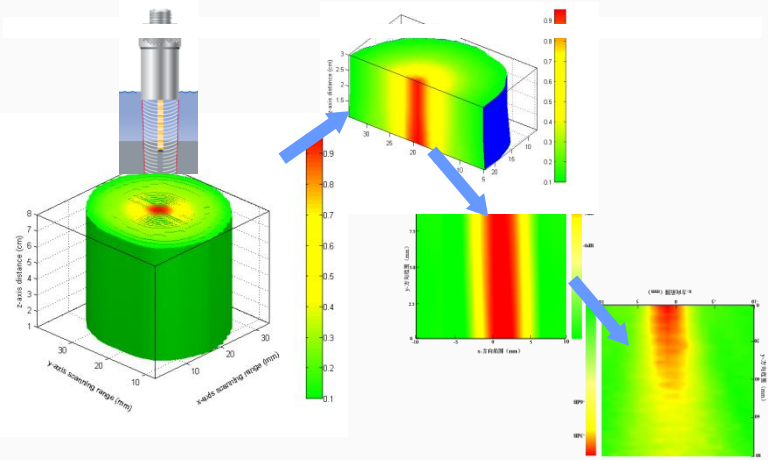


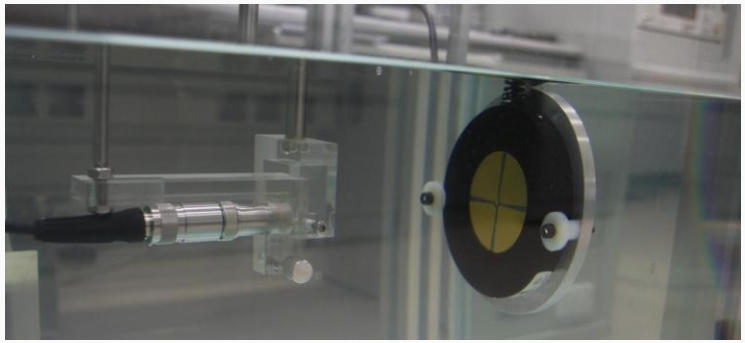
Ultrasound Power Standards

Previous *Frequency: (1-20) MHz Power: (3-20)W*
Current *Frequency: (1-25) MHz Power: (0.1-20)W*

Current status of national standards

High Frequency Hydrophone Calibration Standard - Reciprocity
(0.5 MHz -15 MHz)

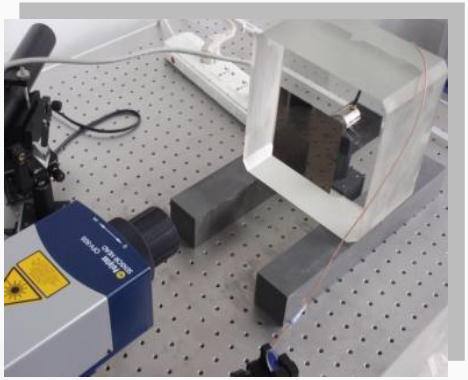


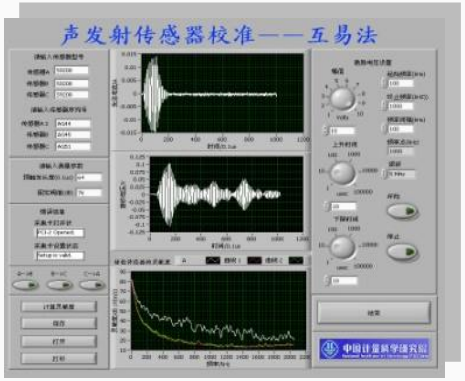


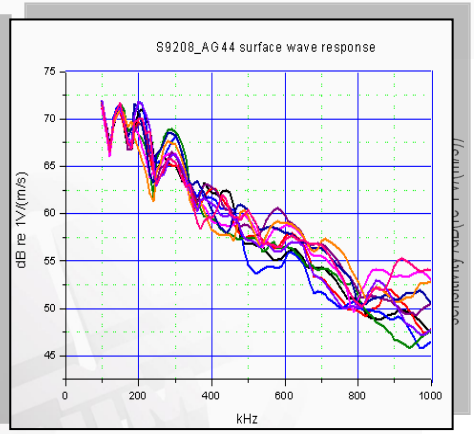
Uncertainty of Different Frequency Range

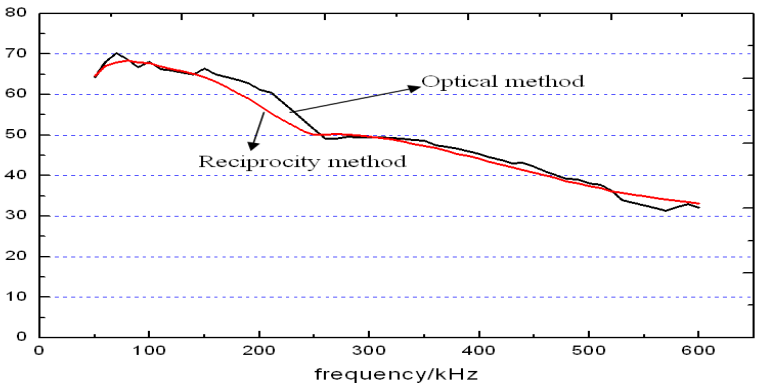
Frequency Range	*U* （*k*=2）
0.5 MHz ~ 5 MHz	7%
5 MHz ~ 10 MHz	10%
10 MHz ~ 15 MHz	15%

Current status of national standards



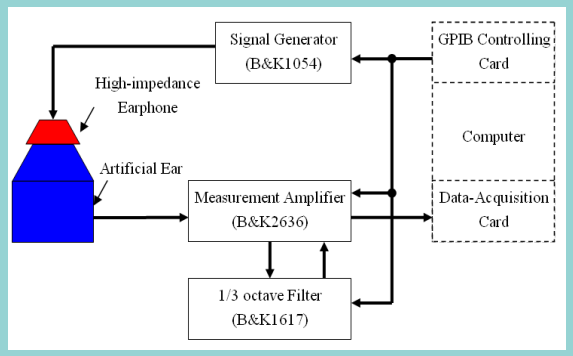






Acoustic Emission Standard : 100 kHz ~ 1 MHz

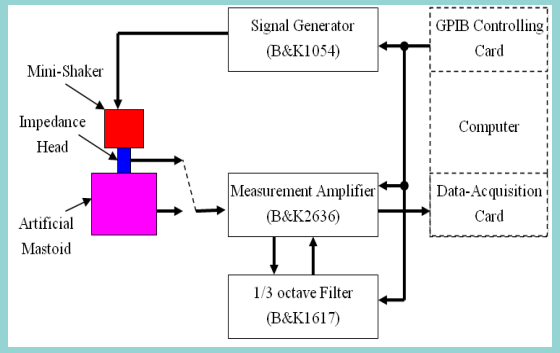
Current status of national standards



Zero Level of Air Conduction

50 Hz ~10 kHz

***U*=0.7 dB (*k*=2)**



Zero Level of Bone Conduction

250 Hz ~ 8 kHz

***U*=1.0 dB (*k*=2)**

National standards report from NIM, China

Part II: Vibration & Shock

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Current status of national standards

Four vibration national standards: from 0.01 Hz to 50 kHz

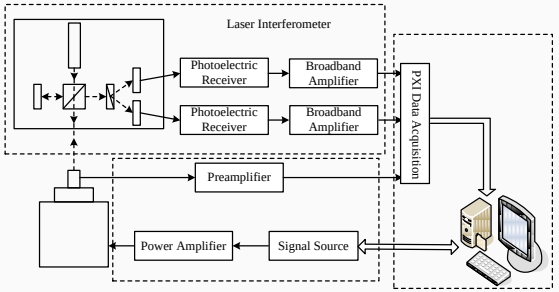
One shock national standard: from 50 m/s^2 to 100000m/s^2

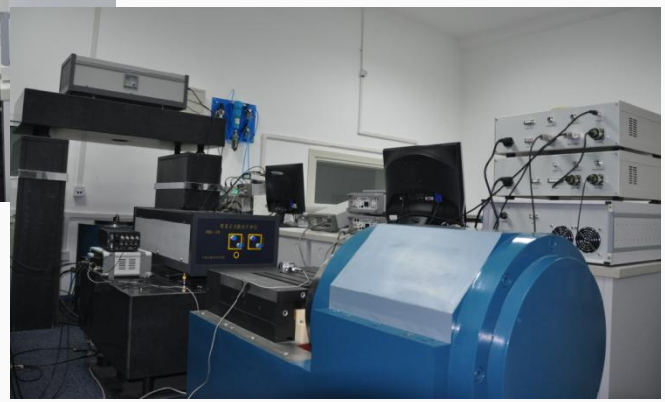
Innovation of national low-frequency standard

From 0.1 Hz to 120 Hz

Hydraulicly, Previous

Max. Accel Distortion<7%



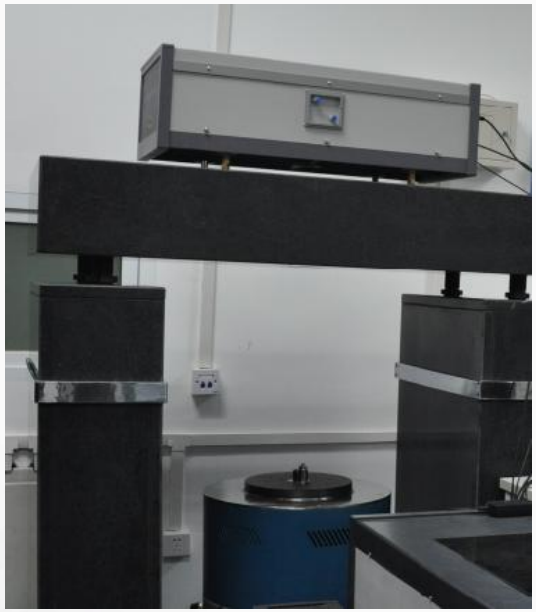


From 0.1 Hz to 200 Hz

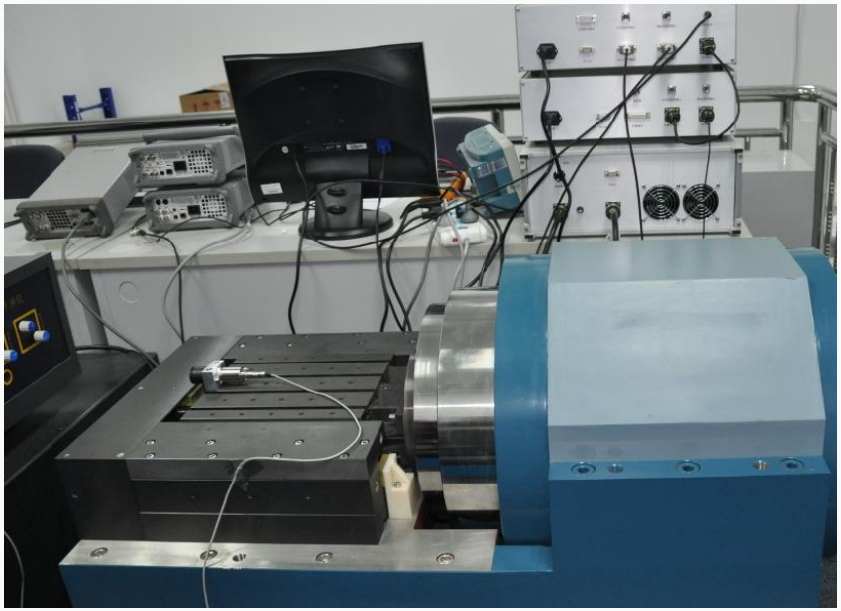
Airbearing, Current

Max. Accel Distortion<1%

Innovation of national low-frequency standard

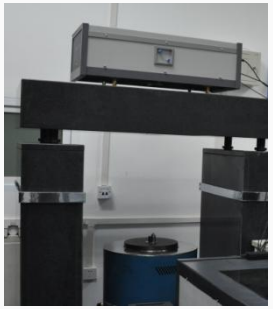


Vertical



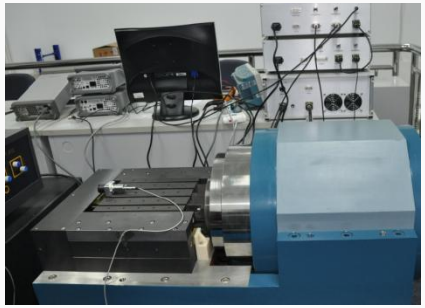
Horizontal

Innovation of national low-frequency standard



Parameter	Horizontal	Vertical
Max. displacement (peak to peak)	50 mm	50 mm
Maximum load	30 kg	30 kg
Uncertainty of amplitude & phase (*k*=2)	0.2% 0.2°	0.2% 0.2°

Homodyne Sine-approximation method



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Thank you for your attention!

8th meeting of CCAUV, BIPM
13 to 14 June, 2012