Recent Activities at NMIJ

Acoustics and Ultrasonics

Activities in acoustics

- Development of sound power level standard (until 2014).
  - *Calibration of reference sound source (RSS)*
- New calibration service of multifunction sound calibrator (Oct. 2013).
- Participation in CCAUV.A-K5 (Aug. 2012).
- Peer-reviewed (Dec. 2012) and re-accredited (May 2013).

Calibration system of RSS

RSS (Brüel & Kjær 4204)

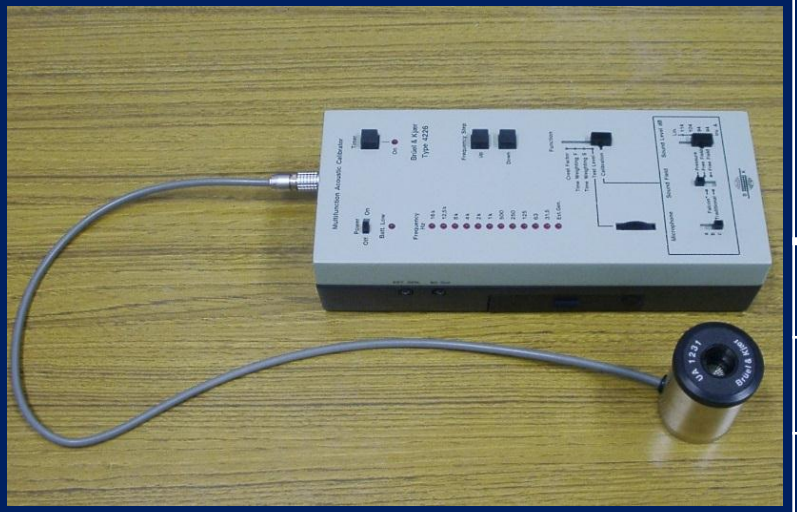
Hemisphere frame for fixing 20 microphones (diameter: 4.6 m, stainless steel)

Wooden plate : 15 mm thick

Frequency range: 100 Hz – 10 kHz

Major customers expected : business equipment manufacturers

New calibration service
- Multifunction sound calibrators -



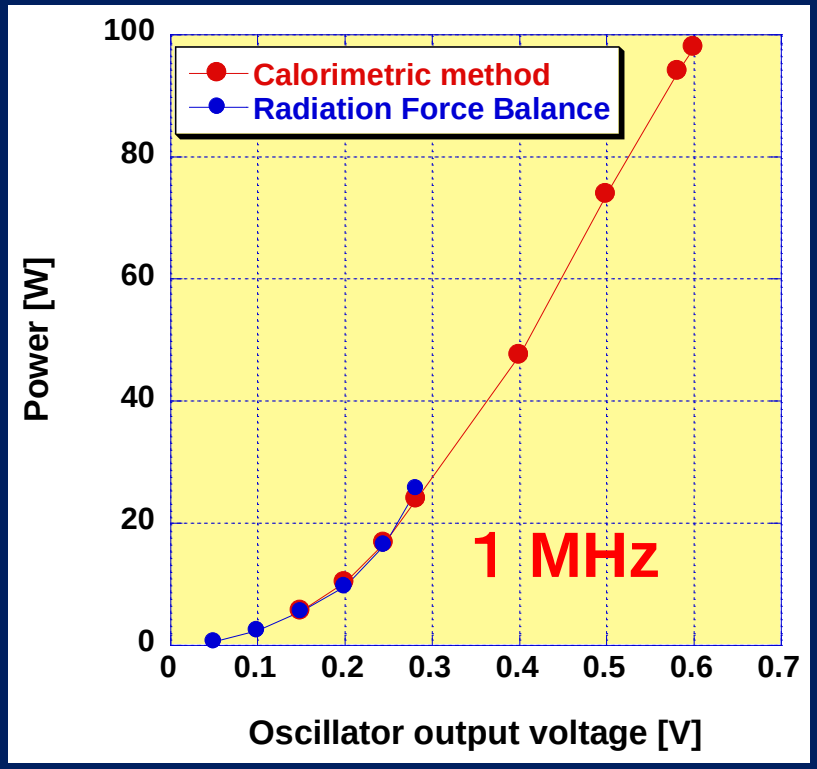
Multifunction sound calibrator
(Brüel & Kjær type 4226)

Frequency	Expanded uncertainty (k=2)
31.5 Hz ≤ f < 63 Hz	0.09 dB
63 Hz ≤ f < 8 kHz	0.08 dB
8 kHz < f ≤ 12.5 kHz	0.10 dB
12.5 kHz < f ≤ 16 kHz	0.14 dB

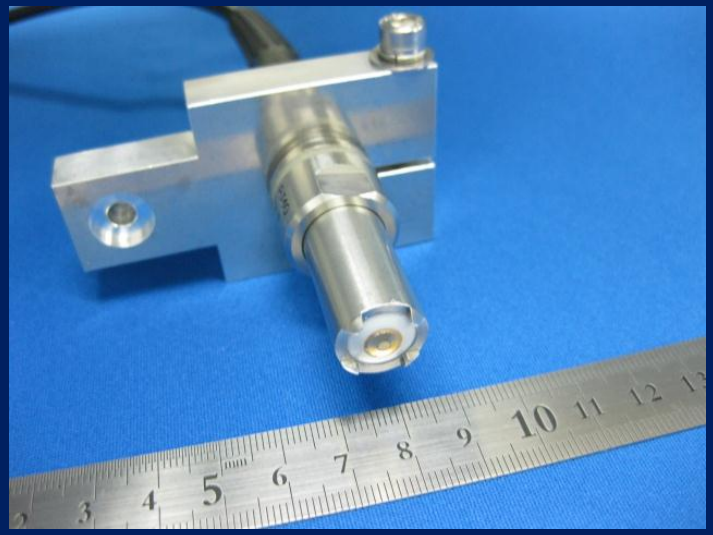
Activities in ultrasonics

- Development of calibration systems to extend the range of service (until 2014).
  - Ultrasonic power : up to 100 W, by calorimetric method.
  - Hydrophone sensitivity : up to 40 MHz, by laser interferometry.
  - Hydrophone sensitivity : from 100 kHz to 1 MHz, by reciprocity technique

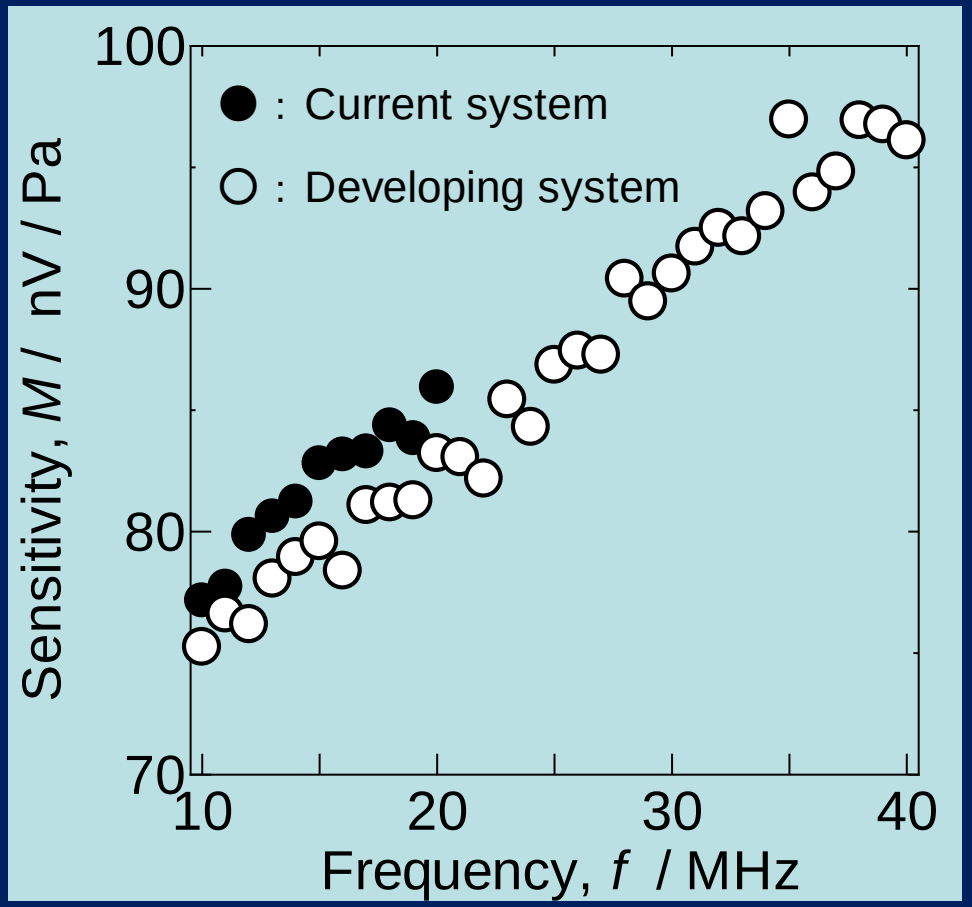
Ultrasonic power up to 100 W by calorimetric method



Calibration of hydrophone sensitivity up to 40 MHz by laser interferometry



Fabricated transducer with small active element to achieve “far-field” at small propagation distance.



Calibration of hydrophone sensitivity from 100 kHz to 1 MHz by reciprocity technique