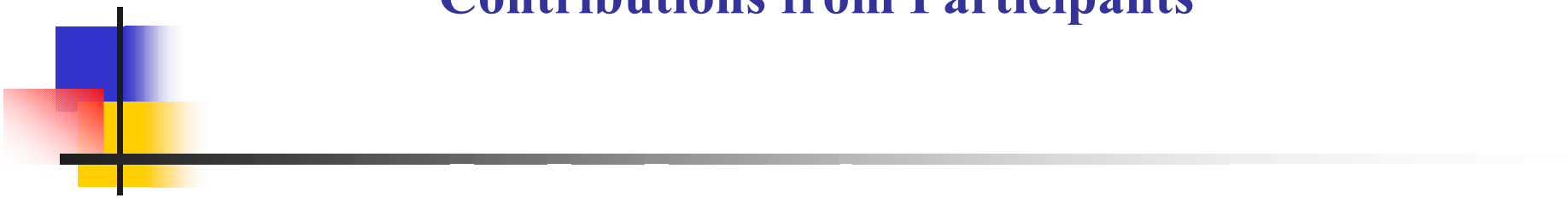
CCAUV/02-41

3rd CCAUV Meeting

Contributions from Participants



1-2 October 2002

Sang Joon Suh

Korea Research Institute of Standards and Science

Development and Improvement of National Standards

Measurement of Spatial Distribution of Ultrasonic Radiation Field

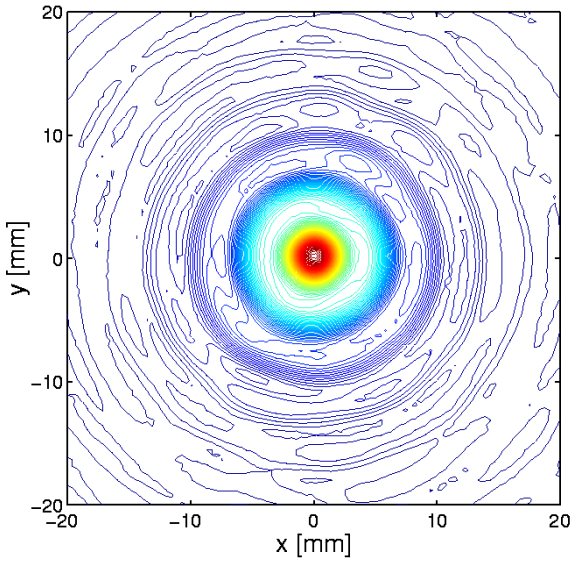
Free-Field Reciprocity Calibration System

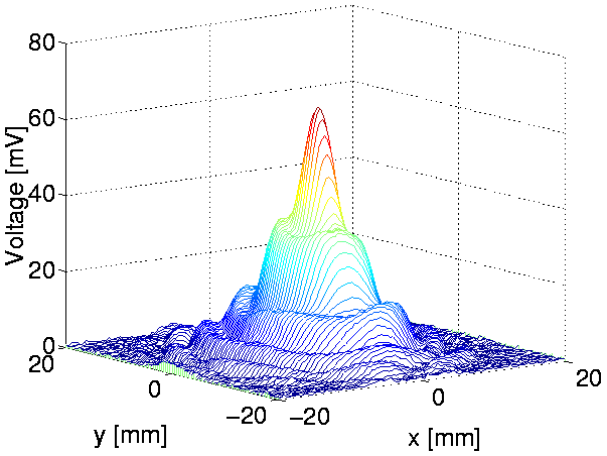
Replacement of Absorbing Wedges in Anechoic Chamber

Peer Review

Measurement of Spatial Distribution of Ultrasonic Radiation Field: Planar Scanning Method

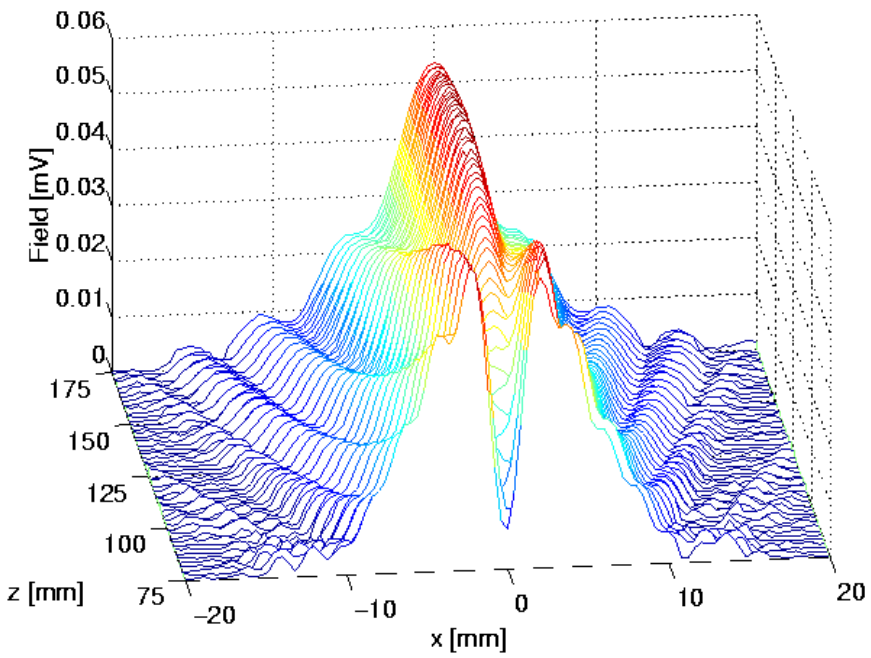
Scanning System

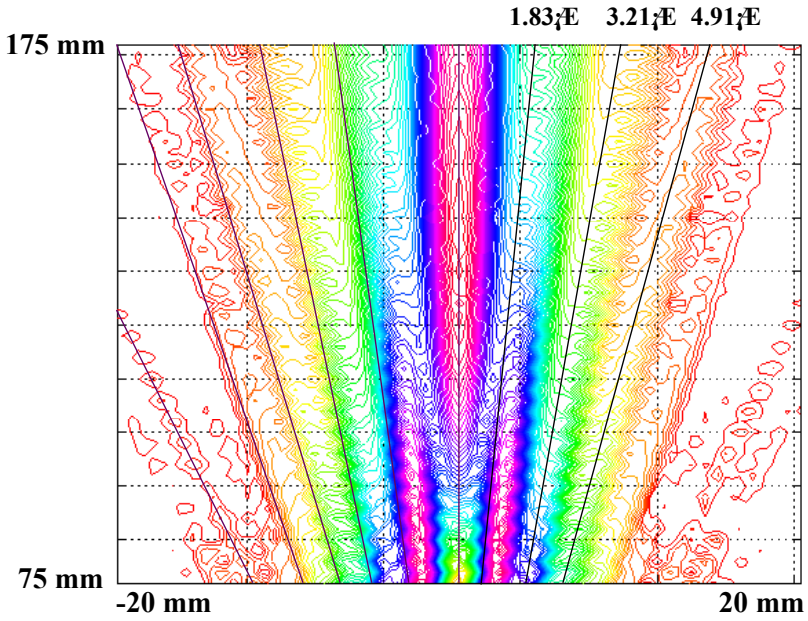




XY-Scan Result(5 MHz, z = 149 mm)

Result of XZ-Scan

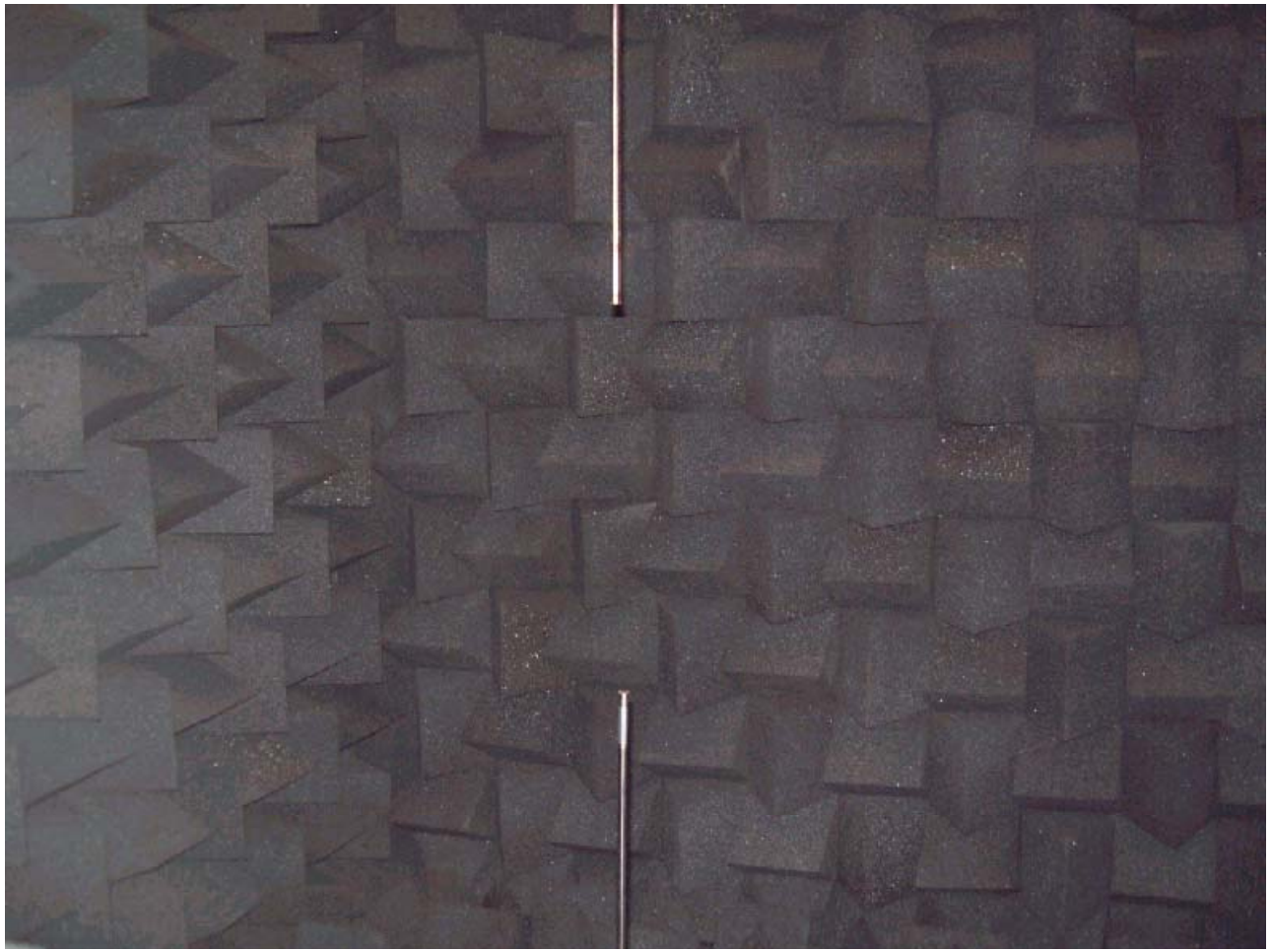




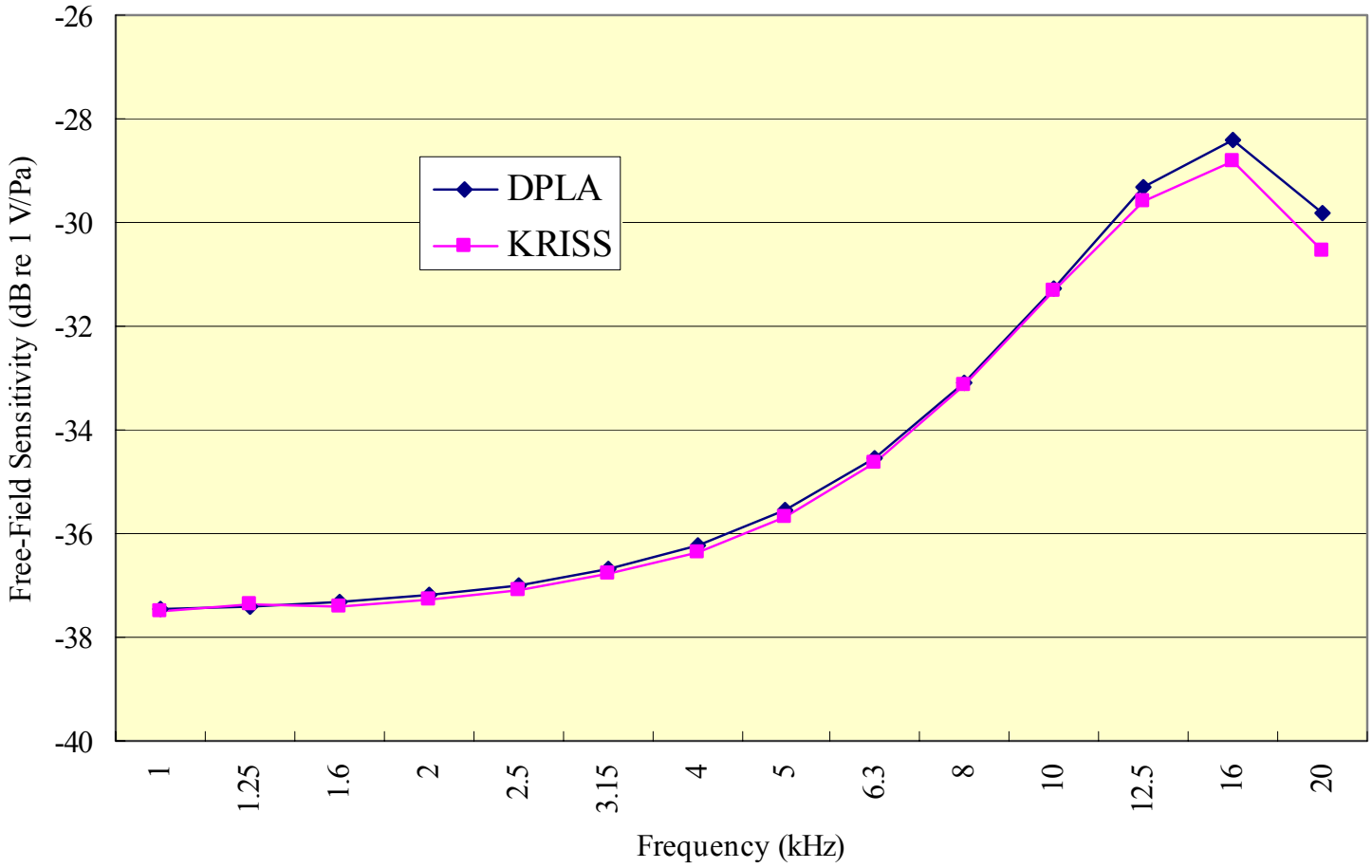
Scan range : x (-20, 20) z (75, 175) unit: mm
Nominal radius : 6.35 mm, Nominal frequency : 5 MHz,

Free-Field Reciprocity Calibration System

LS2 Microphones for Free-Field Calibration in Anechoic Chamber

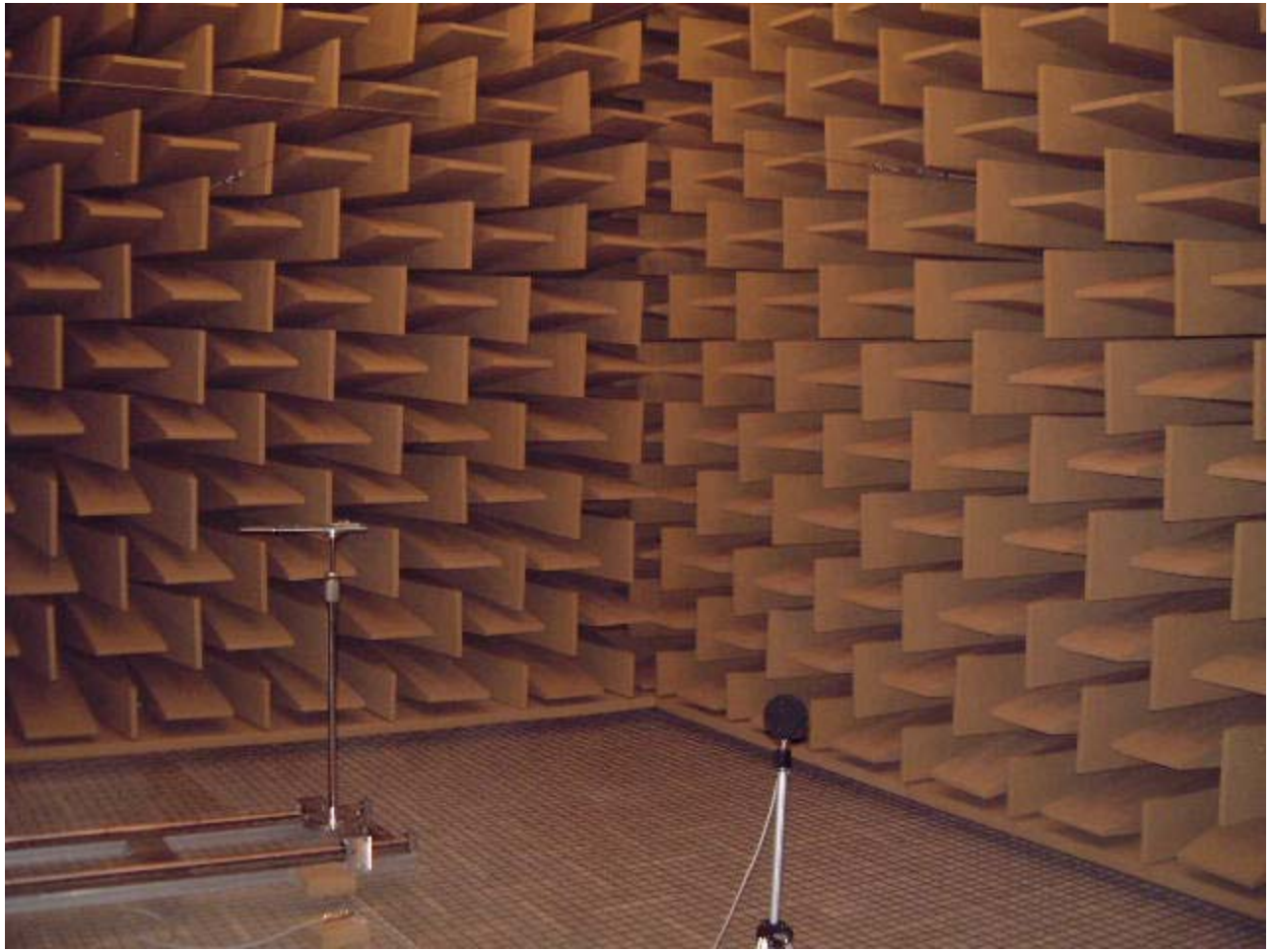


Free-Field Sensitivity Calibration Results

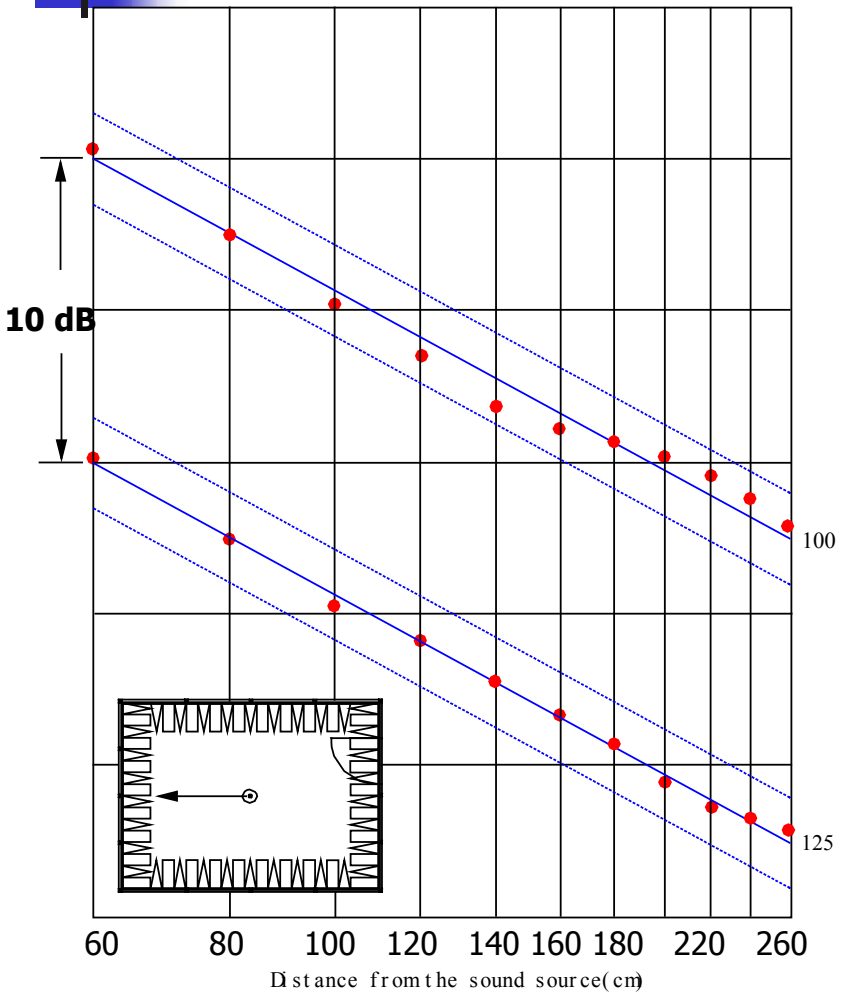


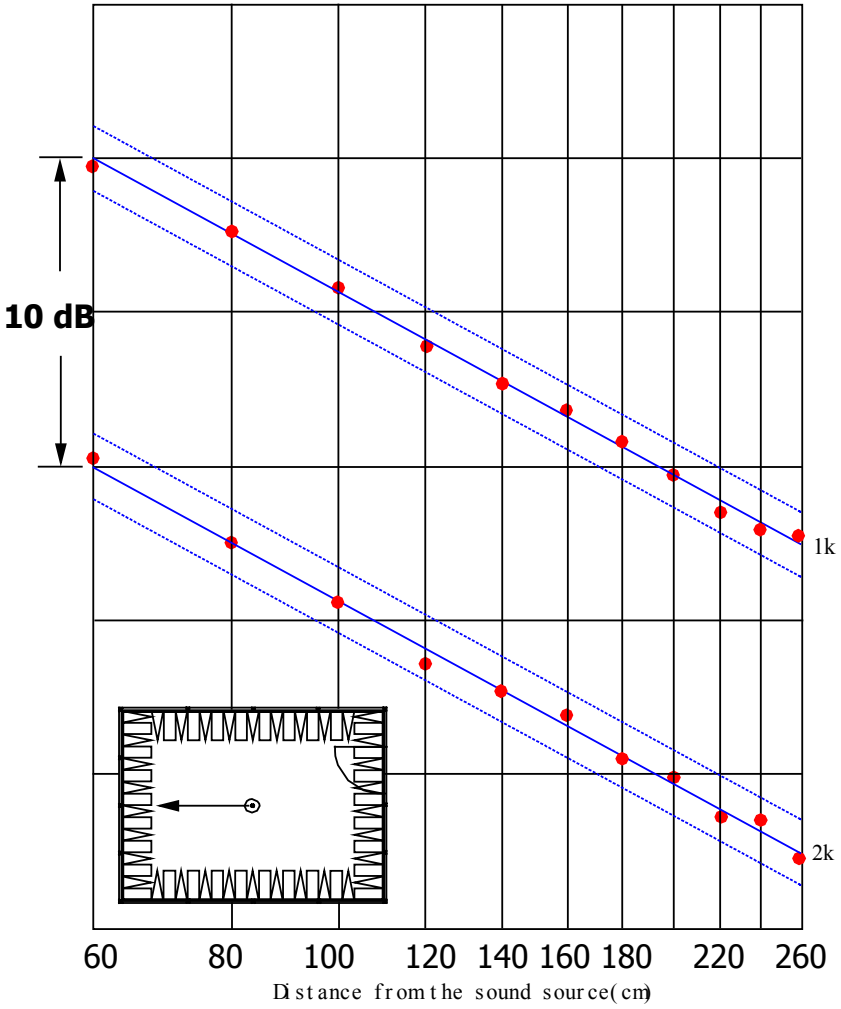
Replacement of Absorbing Wedges in Anechoic Chamber

Internal View of New Anechoic Chamber



Inverse Square Law Test Results





Peer Review

KRISS had been approved by Korean Foundation for Quality (KFQ) and International Certification Network (IQNET) to ISO 9001:1994 in Feb. 2001

The scope of certification covers services of calibration, testing, and certification of reference materials in the fields of physical, electromagnetic, optical, and chemical metrologies, materials evaluation, industrial measurement technology, and vacuum technology.

To meet the requirements for the global MRA, KRISS has been going through a series of peer reviews since September 2001.

Peer Review in AUV

The peer review was done to evaluate the calibration and testing services of AUV against the technical requirements of the ISO/IEC 17025.

Period:

1 – 4 July 2002

Reviewers:

Acoustics and Ultrasound

Dr. Suszanne Thwaites : CSIRO(Australia)

Mr. Wan Aziz Wan Salleh : SIRIM(Malaysia)

Vibration

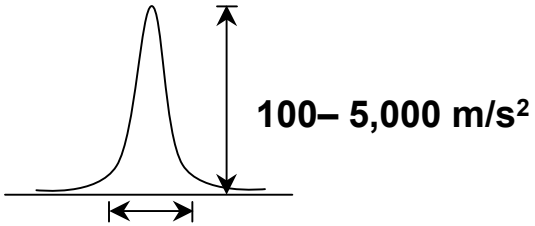
Dr. George S. K. Wong : NRC(Canada)

Research Areas

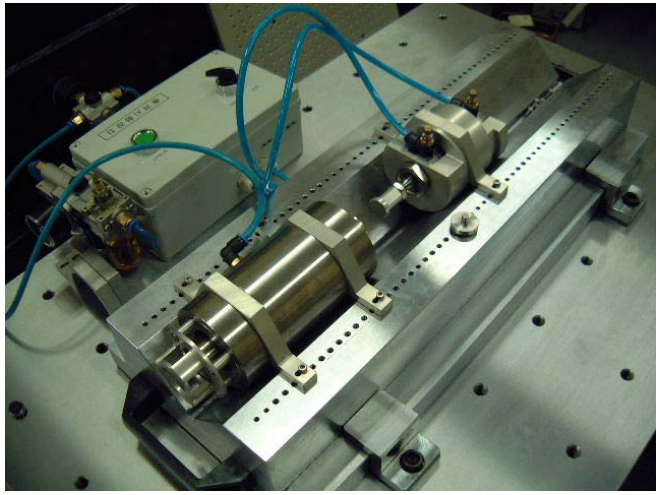
Development of Shock Calibration System

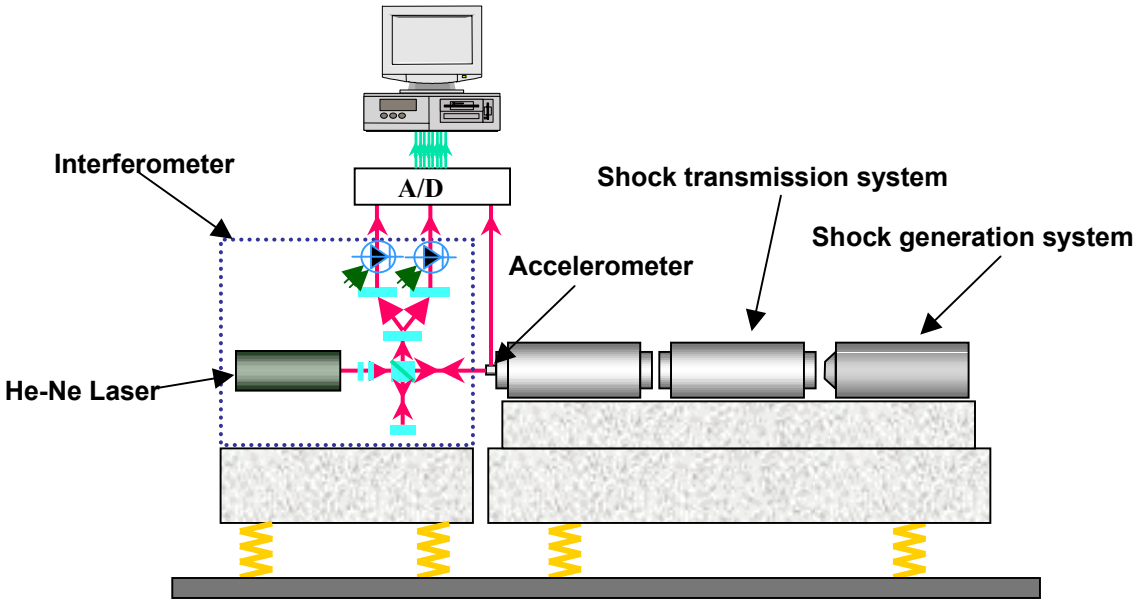
Effects of Noise and Vibration Exposed to Human and Their Assessme nt

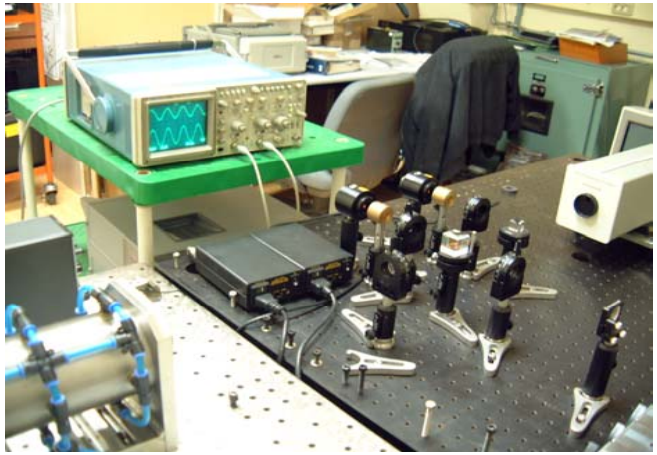
Development of Shock Calibration System



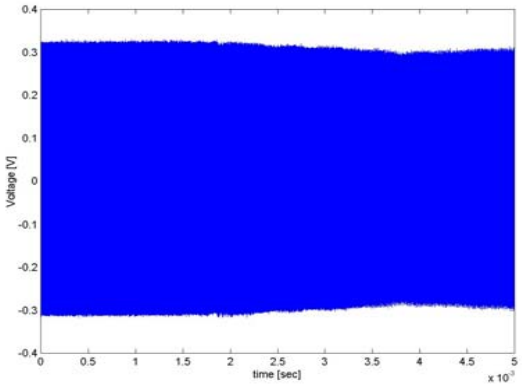
Uncertainty ≤ 2 %



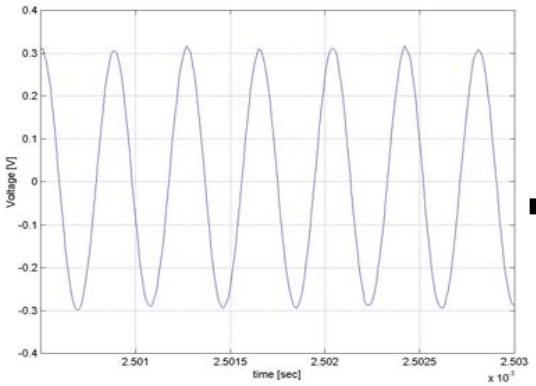


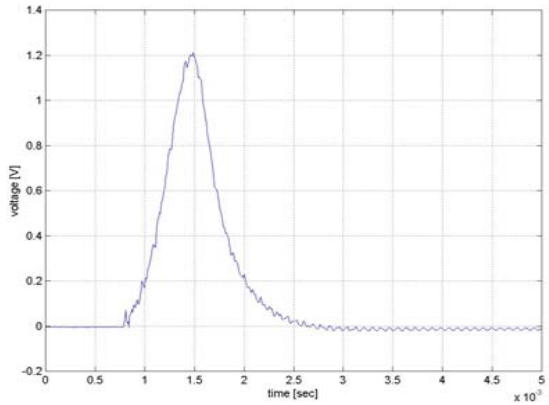


Sensitivity Estimation

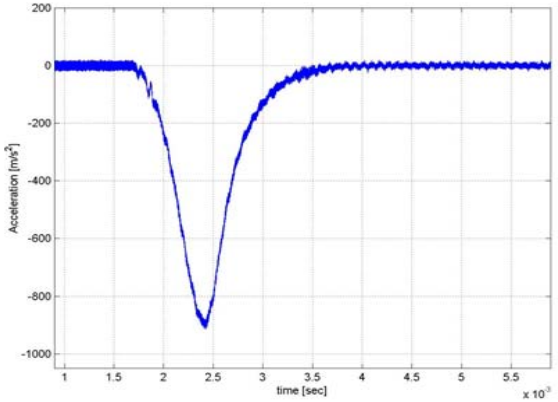


Zoom





Acceleration



Sensitivity

$$S = \frac{Q}{A} = \frac{120\ [\mathrm{pC}]}{895\ [\mathrm{m/s^2}]}$$

$$= 0.134\ \left[\mathrm{pC}/\mathrm{m/s^2}\right]$$

Effects of Noise and Vibration Exposed to Human and Their Assessment

- To understand the fundamentals underlying behind the human responses of exposed noise and vibration

- It includes setting-up noise and vibration simulation/ reproduction systems and exposed noise and vibration measurement system

- The noise and vibration reproduction systems are used to test qualitatively and quantitatively human responses to stimulated noise and/or vibration

- These experimental attempts have allowed to gain the nationwide response database of Korean, which will play significant roles in designing such new automotive-related products as seats, suspension units and tires.