

**Department of Mechanical Engineering  
Indian Institute of Technology Delhi**

10 October 2012

Sealed quotations are invited for following system:

**Sound intensity measurement system:**

**Specifications:** The sound intensity measurement system (that may include transducers, analyser/data processing device, software, etc) should be portable, battery operated, hand-held to enable measurement of sound intensity in a laboratory or in remote field environment and should comply with essential measurement standards.

The system should be able to carry out sound intensity measurements (complying IEC 61043), enabling sound power calculations. The system should enable source location identification and noise mapping.

The system should lend itself to carry out simple sound pressure level measurements with 1/1 and 1/3 octave analysis on the handheld system showing octave output during measurement. The system should have a built-in camera to take image & super-impose sound measurement data.

**Other essential features:**

- Frequency Range: The system should output pressure/intensity data in octaves bands. Measuring frequency range should be 50-10k Hz (minimum) and Centre Frequencies for 1/1 and 1/3 octave measurement should be 31.5 Hz – 8 kHz and 25 Hz – 10 kHz respectively.
- Should be able to measure both mean pressure and intensity simultaneously and both be shown as spectra.
- Available spectra for all calculation should be for both Z- and A- weighting.
- System should have user friendly utility software for archiving, reporting and exporting results
- Possibility of track of measurements and data, Photographic, textual, metadata and verbal annotations; Capable to attach comments to measurement (in the form of voice, text, image etc.)
- User guidance through visual and aural feedback capability during measurement through headphone
- Color touch screen and capable to give on the spot results (intensity spectra); it should also give measurement quality feedback through appropriate measurement quality indicators.
- Appropriate feature of excellent phase matching with possibility of high frequency compensation. This is important required feature for the required accurate intensity measurement for all frequency ranges.

- For both setup parameters and measurement data, all sessions should be stored in a named Project. The data should be possible to export to Excel or similar format.
- A convenient way of defining and modifying grid system for measuring plane.
- Sound power should be calculated and viewed at each grid.
- USB, LAN, modem interface: Equipped with latest interface devices.
- Storage system: Internal Flash-RAM of capacity at least 15Mb, and should have external compact flash socket for appropriate easily available memory cards (e.g.,SD).
- The system must be equipped with a photo capturing camera with automatic exposure and the system should be able to indicate grid on the image of the measurement object
- Battery operated with rechargeable Li-Ion battery with typical minimum of 8 operating hours.

The system should comply with following standards:

- Instrumentation : IEC 61043 (1993–12) Class 1, IEC TS 62370 (2004–05), IEC 61260 (1995–07) plus Amendment 1 (2001 – 09), 1/1-octave Bands and 1/3-octave Bands, Class 0, ANSI S1.11–1986, 1/1-octave Bands and 1/3-octave Bands, Order 3,, Type 0-C, ANSI S1.11– 2004, 1/1-octave Bands and 1/3-octave Bands, Class 0, The probe should comply with IEC 1043 Class 1.

It should be possible to conveniently calibrate the entire system with a portable calibration system with possibility of pressure calibration of both channels, phase calibration of the two channels and verification of the pressure-residual intensity index. The calibration system should be the part of quotation as an option.

Weight and Dimensions: Entire system (including sensors, data analysis hardware and essential accessories) should be light and compact to enable convenient hand held measurement and intensity data analysis process.

The quote should enlist additional accessories as options priced separately.

Sole agency certificate, proprietary certificate, etc as applicable should be submitted with the quotation. The technical bid should accompany list of such system supplied to reputed organizations. The price, if quoted in foreign currency, should be FOB source country. Standard IIT Delhi payment terms apply. Separate sealed technical and price bids along with spec-compliance sheet should be submitted on or before 25<sup>th</sup> October, 2012 to the following address:

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