



**BHARAT HEAVY ELECTRICAL LIMITED**  
**CORPORATE R&D, CTI, BHEL MALLESWARAM COMPLEX**  
**PROF CNR RAO CIRCLE, OPP. IISc, BANGALORE 560 012, INDIA**

SPEC. No. R&D/CTI/SR/ NMK/4-2013

Date: October 28, 2013

**Technical Specifications of the Noise Measurement Kit:**

**A. General Requirement of the Noise Measurement Kit:**

- I. **Purpose:** The purpose of the Noise Measurement Kit is to measure various noise levels most reliably under Simple Noise Measurements (General Noise Measurements), Environmental Noise Measurements (including Outdoor Noise Measurements), Occupational Noise Measurements, etc, as applicable.
- II. **Compliance to Measurement Standard/s:** The measurement should qualify all the latest standards of noise measurement, i.e. (IEC 61672-1:2002 Class 1 or IEC 61672-3:2006 Class 1 Standard or equivalent ASTM Standard, Class 1).
- III. **Data Display:** The measured data is to be displayed in a “clear and simple format” in English Language (preferably with colour OLED display with ambient light sensor and automatic brightness / contrast adjustment, also, preferably to be fitted with illuminated keypad for night time measurements) along with a real-time noise chart so that the kit shows how the noise level also varies with time.
- IV. **Specific Measurements & Data Analysis:** The kit is to measure & analyze real time octave bands for both 1:1 and 1:3 octaves respectively. Single 1:1 octave band range from 31.5Hz to 16kHz and for 1:3 octave bands from 6.3Hz to 20kHz. Since, several acoustic parameters are required to be measured simultaneously, hence the kit should have the provision to measure simultaneously for sound level functions, Leq functions, TWA/Dose functions, NR, NC curves, 1:1 & 1:3 octave band filters etc. Kit should also provide options for measuring noise data output in terms of statistical levels, the average level or the spectrum.
- V. **Facility for Data Storage, Data Transfer, Software & other Supports:** The kit also should be capable of storing all the measured data both for recording and evidential purposes, as well as to allow re-analysis the stored data as and when it is required. The kit should have sufficient memory (2 – 4 GB capacity, expandable to higher capacity) with required software and should be capable to interface with modern-day computers for the purpose of data analysis, reporting etc. The kit also should have 3G/GPRS modem & GPS supports.

- VI. **Microphone & Tripod:** A **detachable-type microphone** (removable pre-amplifier) is also to be provided with the kit and provision for mounting the microphone to the kit as well. A suitable **TRIPOD** (preferably lightweight) for the kit is also to be provided to facilitate self supporting measurements.
- VII. **Other Accessories:** The kit should also have all the necessary accessories those are required for the purpose, i.e.,
- a) an acoustic calibrator (calibration as per latest IEC Class 1 standard or equivalent ASTM standard, Class 1 calibration)
  - b) certificate/s of calibration,
  - c) windshield/windscreen (with appropriate dia),
  - d) spare batteries (ONE number),
  - e) power cable, data cable/USB download cable,
  - f) required software for data transfer, analysis etc,
  - g) protective carrying case of the kit (preferably weather proof),
  - h) User manual/operation manual,
- VIII. **Commissioning:** The Kit is to be commissioned at our plant at their cost of the Vendor.
- IX. **Warranty:** One year warranty of the Kit (along with all accessories) from the date of commissioning.



## B. Technical Specifications of the Noise Measurement Kit :

<b>Compliance to Standards:</b>	Latest standards of IEC 61672-1:2002 Class 1 or equivalent ASTM standard
<b>Measurement range:</b>	Noise Floor: <18dB(A) Class 1, with single span measurement range from 20-140dB(A) and 143dB(C) Peak
<b>Weightings: Frequency Time</b>	Simultaneous A, C & Z Frequency Weightings Simultaneous S (slow), F (fast) and I (impulse) Time Weightings as well as Peak level Real-time 1:1 & 1:3 Octave Band Filters
<b>Octave Bands:</b>	1:1 octave bands from 31.5Hz to 16kHz 1:3 octave bands from 6.3Hz to 20kHz
<b>Sound level functions &amp; Integration:</b>	Leq functions, TWA/Dose functions, 1:1 & 1:3 octave band filters etc. in any defined time period
<b>Display of Results:</b>	NR & NC values & curves on screen Preferably with colour OLED display with ambient light sensor and automatic brightness / contrast adjustment. Also, preferably to be fitted with illuminated keypad
<b>Data Output:</b>	Standard output via USB to modern-day computers Multi I/O port to provide various outputs AC / DC, with appropriate cables ; suitable tripod to facilitate self-supporting measurements
<b>Temperature (Operating), Humidity, Storage:</b>	Temperature: -10°C to +50°C, Humidity: Up to 95% RH Non Condensing Storage -20°C to +60°C As per latest IEC standard (IEC 61672-1:2002 Class 1 or IEC 61672-3:2006 Class 1) or equivalent ASTM Standard

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