11.12.2013

Minutes of the Pre-Bid conference

Tender Notification No.: NITT/F. No: RES 007/PLAN 2013 – 14/CEC   dt: 28.11.2013

The pre-bid conference was held on 11.12.2013 at 2.45 p.m. in the committee room of CECASE and the following amendments are made. All other terms and conditions mentioned in the tender document remains same.

Specification for High Temperature Impedance Analyser / Spectroscopy

Original tender specification	Amended specification
Frequency Range: Frequency range : 10µHZ- upto 32 MHz, Frequency Resolution : 0.015 PPM Accuracy : 0.1%, 0.1° accuracy. AC Amplitude AC Amplitude : upto 3V rms and 0-60mA rms Resolution : 1mV and 100uA Analyzer; Should be able to measure both in current and voltage mode Resolution : 1µV for voltage, 200pA for current Impedance Range: Impedance measurement: 100 mOhms to 100 MOhms Minimum capacitance, inductance and impedance range; 0.1F, 1kH & 100MOhms Temperature Range: 700 – 1000 °C with a resolution of ± 5°C Heating chamber with complete isolation. Frequency Sweep : Logarithmic, linear, AC/DC Voltage, AC/DC Current DC Bias range : +/- 40V and +/- 100mA 2-, 3- and 4-terminal measurement configurations - Separate real time parallel current and voltage analyzers should be provided for exact V/I measurement. - Instrument should have provision to operate easily through front panel	Frequency Range: Frequency range : 10µHZ- upto 30 MHz, Frequency Resolution : 0.015 PPM Accuracy : 0.1%, 0.1° accuracy. Temperature requirement: 1000 °C or above with a resolution of ± 5°C Heating chamber with complete isolation. DC Bias range : ± 20 - 40V and ± 100mA 2-, 3- and 4-terminal measurement configurations - Separate real time parallel current and voltage analyzers should be provided for exact V/I measurement.

and also using computer using specialized software.

<u>Computer system details:</u>

A computer facility (PC) with latest configuration (Intel Dual core processor, 4 GB RAM or better, 500 GB Hard disk, Key board, Optical mouse, 21″ LCD monitor, One DVD Writer, Four USB ports) along with HP Laser Printer and Operating system – Windows 7

Software capability:

- Capability to apply and measure- DC Voltage and current along with AC sine wave
- Should be able to Sweep Freq, Amplitude in both current and voltage mode.
- Should be able to sweep DC voltage and current
- Gain, phase, group delay and impedance measurements should be possible.
- Should be able to displays a,b,r,q,t,Z,R,X,Y,G,B,L,C,Q,D,D%, Z*, Y*, ε*, C*, tan delta, DC bias, temperature should be measured and displayed against any of these parameters on Bode & Complex plane
- Equivalent circuit/modeling for detailed analysis of results.
- Software should have comprehensive synchronized control on instrument and temperature controller data acquisition.
- Software should be able to calculate tan delta, epsilon, permittivity, relative permittivity, Impedance, admittance and other related parameters instantly. Null, normalize and auto-impedance modes

- ~~Instrument should have provision to operate easily through front panel and also using computer using specialized software.~~
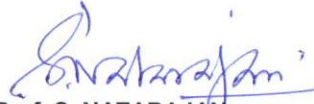
<u>Note:</u>
<u>Sample Dimensions</u>
Ø 20 – 30 mm
Height maximum 5 mm
With suitable probe and sample holding assembly.

Prof. S. NATARAJAN
HoD/Convener
Chairman - CECASE