

**DEPARTMENT OF CHEMISTRY  
NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI - 620 015**

**24.01.2014**

**Minutes of the pre-bid conference**

**Tender Notification No.: NITT/F.No: SIF-006/PLAN 2013-14 dt: 19.12.2013**

With reference to the above tender notification and the pre-bid conference held on 24.01.2014 at 2.00 PM in the Conference Hall of Chemical Engineering department, the following amendments are made. All other terms and conditions mentioned in the tender document remains same.

**Specification for NMR Spectrometer:**

<b>Original tender specification</b>	<b>Amended specification</b>
<b>NMR Spectrometer</b>	
<ul style="list-style-type: none"><li>Actively shielded 11.74 T (500 MHz) standard bore (50-54 mm), low helium loss (long hold time- maximum 1 year ) superconducting cryomagnet for high resolution NMR, with complete set of cryoshims and room temperature shims, vibration damping system, cryofluid level monitor(s), helium transfer line and provision for pneumatic sample load/eject/spin</li></ul>	Actively shielded 11.74 T (500 MHz) standard bore (50-54 mm), low helium loss ( <b>long hold time</b> ) superconducting cryomagnet for high resolution NMR, with complete set of cryoshims and room temperature shims, vibration damping system, cryofluid level monitor(s), helium transfer line and provision for pneumatic sample load/eject/spin
<ul style="list-style-type: none"><li>Basic machine with 2 Broad Band frequency Channel and Broad Band Inverse probe-head, (wide infra). optional third broad band frequency channel with triple resonance probes <math>^1\text{H}</math>, <math>^{13}\text{C}</math>, <math>^{19}\text{F}</math>/X nuclear</li></ul>	No Change
<ul style="list-style-type: none"><li>Fully broadband RF channels including fast phase setting, amplitude setting, and pulse shaping capability, with two quasi-linear RF</li></ul>	No Change

<p>transmitter amplifiers, for both solid state and solution study, not less than 50 W output for <math>^{19}\text{F}</math> / <math>^1\text{H}</math>, not less than 250 W output for other nuclei; both transmitters to result in <math>90^\circ</math> pulse widths not exceeding <math>15\mu\text{s}</math> for <math>^1\text{H}</math> and <math>10\mu\text{s}</math> for <math>^{13}\text{C}</math> at no more than 50% transmitter power output, working with the broadband observe NMR probe listed (vide infra)</p>	
<ul style="list-style-type: none"> <li>Low noise NMR signal preamplifiers for <math>^1\text{H}</math>, <math>^{19}\text{F}</math> and X nuclei, and state-of-the art receiver with digital quadrature detection, high dynamic range and bandwidth, incorporating digital signal processing capability including high oversampling rates, signal decimation and digital filtering.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>z-gradient unit, with adjustable gradient amplitude of <i>ca.</i> <math>30\text{ G cm}^{-1}</math> or higher; provision for rapid automated gradient shimming of NMR samples.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>5 mm tunable broadband NMR probe with z gradient and automatic tuning and matching capability, to be tunable in the range <math>^{15}\text{N}</math>-<math>^{31}\text{P}</math>, with provision for <math>^2\text{H}</math> lock, to be supplied with appropriate filters; probe optimized for direct X-nucleus detection (<math>^{15}\text{N}</math>-<math>^{31}\text{P}</math>)</li> </ul>	No Change
<ul style="list-style-type: none"> <li>5 mm tunable NMR probe for <math>^1\text{H}</math> 'inverse' detection, with z gradient and automatic tuning and matching capability, for <math>^1\text{H}/\text{X}</math> nucleus work, with provision for <math>^2\text{H}</math> LOCK,</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Variable temperature unit, with operating range between approx. 130K or lower to 400K or higher, including complete temperature regulation system, and liquid nitrogen Dewar.</li> </ul>	No Change

<ul style="list-style-type: none"> <li>Autosampler with carousel for 12-32 samples and sample spinners/holders.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Acquisition processor system for complete control of spectrometer, with fast timing capability (better than 40 ns), pulse amplitude, phase and shape control, z-gradient control, and digital receiver control.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Comprehensive software package running from host processor system for spectrometer control, including standard experiment packages, data acquisition including full automation, data display, processing and printout. The package is to permit complete user programming of experiments and is to include spin simulation software, as well as software for fitting relaxometry/diffusometry data. The software is to run under Linux OS or Windows OS.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Multiple user software licenses for simultaneous use by 10 users, running the licenses from computers in the same network as the host processor.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>State-of-the-art PC system (host processor) with excellent graphics capability, high definition monitor screen, large RAM and large disk storage, running LINUX/Windows, with Color laser printer for spectral print-out.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Kit with standard 5 mm NMR tubes and caps; set of standard samples for bench marking of multinuclear sensitivity, resolution and line shape.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Complete set of Instruction Manuals</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Supply of liquid helium and liquid nitrogen for installation. Liquid</li> </ul>	No Change

helium supply during the warranty period	
<ul style="list-style-type: none"> <li>Complete system Installation and demo on-site</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Comprehensive warranty for three years including applicable software upgrades during this period</li> </ul>	<b>Comprehensive warranty for five years including applicable software upgrades during this period</b>
<ul style="list-style-type: none"> <li>Training for one of our personnel at the Principal's Demo Lab including Travel expenses and Accommodation charges.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>The technical bids should include complete pulse width and power level specifications, as well as sensitivity and resolution specifications on stated standard samples for <math>^1\text{H}</math>, <math>^{13}\text{C}</math> and <math>^{15}\text{N}</math> for both probes</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Standard CPMAS probe with 3.2 mm or higher rotor set and rotor kit</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Highest possible sensitivity at state-of-the-art levels: 200:1 (0.1% ethyl benzene) or higher for <math>^1\text{H}</math> and 100:1 (ASTM) or higher for <math>^{13}\text{C}</math>.</li> </ul>	No Change
<b>Accessories</b>	
<ul style="list-style-type: none"> <li>Sample spinner/holder for 5 mm NMR tubes for routine experimental use and for low temperature experiments.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>Standard NMR sample kit.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>12 Standard quartz sample tubes for multinuclear studies.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>6 cryocans (50-55 lit each) with Helium and Nitrogen transfer lines.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>One trolley for transporting 55 liters cryocans.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>All support equipments for magnet (Helium and nitrogen lines, O rings, coupling attachments, spares etc).</li> </ul>	No Change

<ul style="list-style-type: none"> <li>ISO-9001 certified oil free/scroll air-compressor complete with dryer with rating and specification capable of catering all the needs, with sufficiently big buffer tank along with the system. The vendor should quote both.</li> </ul>	No Change
<ul style="list-style-type: none"> <li>30 KVA UPS with 3 hours Backup and oil-free maintenance Batteries.</li> </ul>	<b>10 KVA UPS with 1 hour Backup and oil-free maintenance Batteries.</b>
<ul style="list-style-type: none"> <li>Kindly quote the other necessary accessories to be procured in INR (Indian Rupees) for complete usage of the equipment.</li> </ul>	No Change
<b>Qualification requirements</b>	
<ul style="list-style-type: none"> <li>The vendor should have installed at least one 500 MHz NMR Spectrometer anywhere in India during the last 3 years and must be working satisfactorily now. A documentary evidence to meet this requirement and after-sale support should be produced along with the tender documents. In order to meet the above requirements, vendor should be able to give demonstrations about the capabilities of their working 500 MHz NMR Spectrometer along with the said major components, at any Indian sites.</li> </ul>	No Change
	<b>5% Bank guarantee towards the supply of spares after the warranty period.</b>

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