JNC/PUR/CPMU/TKM/2020-2021/FE-60   January 29, 2021

ADDENDUM – 3

Sub : NIT for ATOMIC FORCE MICROSCOPY (AFM) SYSTEM

Ref: 1. NIT No. JNC/PUR/CPMU/TKM/2020-2021/FE-60 dated 22.12.2020
2. Addendum No.1 dated 4.1.2021
3. Addendum No.2 dated 28.1.2021

With reference to the above, the following changes to the Technical Specification are effected here with:

Sl. No.	Existing	Insertion
1.	**Scanner** X, Y range $\geq$ 90 microns	X, Y range $\geq$ 90 microns with manual or automatic stage
2.	**Operating Mode:** **DART or equivalent technology**	System should have capability to monitor electromechanical response of piezoelectric materials, PFM system should have proper technology to study piezoelectricity at rough surface or atomic thin films of the material. This technology is to distinguish the noise floor of the surface height topography (usually of picometer range), with the electromechanical displacement in atomically thin nanomaterials at the vertical direction. Phase locked loops (PLL) method do not offer sufficient stability to satisfy this specification and will not be acceptable. The vendor should provide proper published references for such measurement.
3.	**AFM Controller and Electronics:** System must use at least 24-bit digital-to analog converters (DACs) in order to generate the XY and Z piezo scan signals. At both, 90 micron and 10 nm scan sizes,	The system should be configured using at least 4 high speed low noise 24 bit DACs and 4 x 16 bit ADCs. A configuration based on individual manufacturer's design would be acceptable. It would be preferable that 24 bit

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		the corresponding bit resolution must be sub-Angstrom (<0. 1nm).	DACs are used to generate XYZ scan signals. The software must allow multiple images and channels of a single scan, such as phase, amplitude, topography, conductivity, etc, to be opened and viewed simultaneously, or overlaid on a primary channel for signal correlation.
4.	**System Optics:** Must have field-of-view between 240 microns and 720 microns. Revise Specifications		Must have field-of-view between 240 microns and 720 microns or better. Standard camera with resolution of better than 2µm

The other terms and conditions of the NIT and Addenda remain same.

(K. Bhaskara Rao)
Sr. Stores & Purchase Officer