**Annexure I**

## Technical Specifications for 'Upright Motorized Optical Microscope'

| 1.0 | **Bidder Eligibility Criteria-** | **Complied / Not Complied** | **Reference Page No.** |
|---|---|---|---|
| 1 | The bidder/OEM should have supplied at least 3 similar items to IITs, NITs, IISERs, CSIR Labs or other Govt. R&D organizations in the last 5 years, PO copies or installation certificates along with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation. | | |
| 2. | The Bidder/OEM's service center should be in India to attend service related issues. Proof of facility location & contact details to be provided along with technical bid. | | |

## 2.0 Technical Requirements for Upright Motorized Optical Microscope

### General Specifications

**Objective**: This microscope will be kept inside a glove box. User should be able to control its functionalities such as focusing, objective control, dark field/bright field operation, managing with the light intensity and stage control remotely from outside the glove box using suitable hardware. It should be capable to take the imaging under bright field and dark field mode.

| S.NO | Technical Specifications | Complied / Not Complied | Catalogue Page No |
|---|---|---|---|
| 2.1 | Upright research microscope with infinity corrected optical system working in reflected light mode. | | |
| 2.2 | Observation Method: Bright field, Dark field with motorized changeover between the two modes. | | |
| 2.3 | LED illumination for Reflected light source with motorized turret. | | |
| 2.4 | Motorized Universal Quintuple Nosepiece ESD | | |
| 2.5 | Motorized **Z**-Focus | | |
| 2.6 | It should have the module to insert different color filters (VIBGYOR) in the incident optical path between the LED source and sample. User should be able to change the filter position from outside using some suitable module. | | |

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|---|---|---|---|
| 2.7 | Semi- Apo/Plan fluor objectives lenses for Bright field and Dark field imaging.<br>5X Epi (NA/WD : 0.15/23.5mm)<br>10X Epi (NA/WD : 0.20/17.50mm)<br>20X Epi LWD (NA/WD:0.40/19.0mm)<br>50X LBD (NA/WD : 0.80/11.00mm)<br>100X BD LWD (NA/WD:0.80/4.5mm)<br>**Dark filed is needed only for 50x and 100x objectives.** | | |
| 2.8 | Erect image formation with sample visualization through camera (Eyepiece are not required). | | |
| 2.9 | **Digital Camera & Software:** High resolution dedicated microscope color camera with 5.9 megapixel or higher; Live display speed 30 fps or better at 1440 x1024 or equivalent resolution, complementary metal oxide semi-conductor (CMOS) 6.9X4.9mm or 1/1.28 inch, exposure time: 100 micro sec – 30 sec. Required adaptors should be provided. NO Memory card based camera accepted. | | |
| 2.10 | **Motorized stage:** with travel range of 114x75 mm or higher, 2 mm pitch ball screw and 200 step motors, control Encoded XY stage and focus, with 2x RS232, USB and programmable TTL. Supplied with SDK for easy software integration. Joystick control unit. | | |
| 2.11 | **Software:** Basic Software package for Acquisition and device control through four dimensional acquisition, Image Acquisition, Live Image capture, Automatic measurement, Auto counting, Time-lapse image capture, Z-series image capture,<br>Multipoint image capture, Multichannel image capturing, AVI live-stream capture,<br>Objective calibration, Capturing data saving, Report Generator facility | | |
| 2.12 | **Computer:** Desktop- i7 Processor with 32 GB RAM, 1TB HDD, Keyboard, Optical Mouse, 22” of higher LED Monitor. OS: Windows 10 professional. | | |
| 2.13 | **Spares:** At least 3 extra Illuminators | | |
| **Other Terms and Conditions** | | | |
| 2.14 | **Warranty:** Vendor should include at least 2 year warranty for the system. AMC terms for another two years should be quoted as optional. | | |

(Note: It is mandatory for the bidders to submit a compliance statement for the aforementioned points in tabular format and required/necessary documents in the technical bid. Failure to comply with which bidders will be formally rejected)