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MATERIALS MANAGEMENT DIVISION
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Technical specifications of Chemiluminescence & Gel Imaging & Analysis System

Sr. No	Particular	Qty	Compliance Yes / No	Add. Information / Remark
I	<p style="text-align: center;"><u>Technical Specifications of Chemidocumentation Imaging System</u></p> <ol style="list-style-type: none">1. Imaging System should be stand-alone, ready to use with all essential hardware & accessories, darkroom, CCD camera, and advanced software for image acquisition and analysis.2. System should be capable of doing applications like stain free Imaging, Chemiluminescence, Colorimetry, Fluorescence, Densitometry, Nucleic acid Documentation.3. System should have in-built 16-bit CCD (not A/D) camera with pixel density of 65,536 gray levels having individual pixel size at least 4.54 x 4.54 μm or bigger.4. Camera resolution should be 6 megapixels or higher and have a Peltier based cooling to -15Deg Celsius, absolute5. The imaging system should allow users to position their samples using appropriate tray and automated image capture driven by a selected gel or blot application.			

	<ol style="list-style-type: none"> 6. The instrument should provide excellent quantitative data from a single blot having very intense and weak signals in a single image; to facilitate the same instrument's dynamic range should be at least 4 orders of magnitude for all applications. 7. Instrument should provide highest level for sensitivity and hence must have minimal dark current with maximum limit of 0.002 e/p/s and low read noise of not more than 6e-. 8. Quantum efficiency at 425 nm should be 70% or more, this will ensure that the instrument is highly sensitive to very faint signals from chemiluminescent blots. 9. Motorized zoom fast lens with f/0.95 or better should be provided. 10. Light sources/excitation should include – Trans-UV (302 nm), Epi White, trans-white (via White sample tray). It should come with onsite upgradation option to include following illumination sources such as Epi-blue (460-490 nm excitation), Epi-green (520-545 nm excitation), Epi-red (625-650 nm excitation), Epi-far red (650-675 nm excitation), Epi-near IR (755-777 nm excitation) for multiplex fluorescence imaging in RGB, Near IR and IR. 11. Instrument should have provision for protective UV shield for use during band excision with safety interlocks to avoid un-intentional UV exposure to the user. 12. Minimum imaging area for white light and chemiluminescence application should be 20.5 cm x 16.5 cm. 13. The imaging system should provide image acquisition with automatic zoom, focus, and iris adjustment without the need for users to focus or adjust aperture settings. 			
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	<p>14. The instrument should have onboard attached touchscreen of 12” or bigger with multi-touch capability (2 points) enabling users to easily interact with the touchscreen to acquire, assess and export images. Touchscreen actions should include – tap, double tap, pan, scroll to zoom.</p> <p>15. Instrument should have multiple input/output ports with minimum 3 USB ports allowing users to connect USB devices (like keyboard, mouse, data storage, and printer). One USB port should be provided on the front panel for easy export to USB. Also, system should have one Ethernet port so that users can transfer image files via Ethernet to networked computers.</p> <p>16. Factory calibrated flat fielding for ensuring uniform data for all applications. System should be calibrated for image area, focus, and flat field correction at the factory and files stored in the integrated PC.</p> <p>17. Users should be able lock the system to prevent others from interrupting/changing the settings.</p> <p>18. The system should have a fixed sample stage.</p> <p>19. The system should provide flexibility in selecting the pixel binning options, should be possible to select minimally 2x2, 4x4 and 8x8 binning.</p> <p>20. The system should be provided with analysis software with unrestricted user license.</p> <p>21. Software should have highest level of automation in hardware calibration, image optimization, capture, and analysis.</p> <p>22. Should have automated workflow recorded in a protocol file from image capture to results thus eliminating need for training.</p> <p>23. Should allow 100% repeatability of the workflow by any user and ensures optimized image analysis from a gel in a single uninterrupted,</p>			
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	<p>fast, and completely reproducible workflow.</p> <p>24. Software should have automated normalization feature for normalizing western blot signals of target band with a housekeeping protein band and total protein normalization.</p> <p>25. Software should be both PC and Mac compatible and freely mable to future versions.</p> <p>26. The software should generate the publication ready images (dpi, dimension and format) with one click export option.</p> <p>27. Analysis software should not only generate customizable reports but also have feature for automatic print when only imaging and printing is required.</p> <p>28. Software should have easy copy/paste functionality, crop, zoom, 3D and colours.</p> <p>29. Software should perform analysis functions such as lane and band detection, background subtraction, incorporation of nucleic acid/protein standards from vendor as well as external vendors and absolute and relative band intensity determination.</p> <p>30. The analysis software should be capable of upgradation to 21 CFR compliant version to provide a secure environment for protocol, data acquisition and analysis.</p>			
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II. Other Terms & Conditions

- 1 **At least three prior installation report** of the exact same model of the instrument in different universities/ institutes/ companies in India is required (should be provided with proper documentation from corresponding authority). The manufacturer should **have at least 10 installations of imaging systems in the country (user list to be provided)**.
- 2 White Tray should be supply with Machine
- 3 **Warranty :- Three Years**
- 4 Principal company for the instruments should be operational in the country and installation and training should be executed by direct company engineer and not by any third party recruited engineer.
- 5 If required, institute may ask bidder to provide onsite demo of the instruments prior to procurement.