Revised -Technical Specification for Advanced Laparoscopy Camera System with NIR Platform

The complete system should include the following items

1. 4K Camera Processor & Camera Head - 1 set
2. LED Light Source with NIR technology- 1 no
3. Fiber Optic Light Cable- 1 no
4. 4K LED Monitor -1 no
5. Telescope- 2 nos
6. Insufflator - 1 no
7. 4K Recording and Documentation system -- 1 no
8. Trolley – 1 no with one set of accessories

4K Camera Processor & Camera head with NIR/ICG Platform- 1 Unit

· The platform should be a CMOS system with a native resolution of 3840x2160 pixels that includes the capability to perform real-time endoscopic near-infrared visualization.

· Should have these following NIR fluorescence visualization modalities: -

Overlay mode: Ability to superimpose NIR fluorescence images onto standard white light images in real time to enhance visual differentiation of anatomical structures.

Color Contrast/monochromatic mode: ICG Fluorescence-positive regions should be displayed in white, while non-fluorescent areas appear dark, providing maximum contrast for clear identification of target tissues.

Color Scale Segmentation/transition mode: The system should provide a dynamic color scale transition in real-time to visualize varying fluorescence intensities corresponding to dye absorption in different tissues or organs.

· Should also have a special mode that enhances the visualization of vasculature on the mucosal surface in the procedures by emitting only green & short blue wavelengths.

· System must be compatible with pafalocianine dye which is a tumor-targeted fluorescent imaging agent used in lung and ovarian cancer detection by intravenous administration.

Should have inbuilt Infrared Illumination technology designed to trans-illuminate and visualize the ureters during laparoscopic surgery

· Should have Defogging mode to reduce fogging during surgery

- Should have touch screen control for ease of operation
- Should have the provision to adjust the gain of NIR image manually through the camera head or the processor.
- Should have minimum 4 Programmable camera head buttons which allows the user to customize and control minimum 15 functions from the sterile field improve efficiency.
- Camera head should have the facility to control the light source and recording device.

The system should have a digital zoom function with up to 7 levels of image magnification.

Should have Automatic light adjustment technology that maintains consistent light using an algorithm, determining optimal lighting levels, auto adjusts light output accordingly

- Should have 4K compatible video output ports
- Should have Class I Equipment, Type CF Applied Part, Ingress Protection, IPX7—Protected against the effects of temporary immersion in water (Camera Heads)
- Should be European CE and USA FDA approved.

LED Light Source with NIR/ICG technology – Qty 01

- The Light Source System should be capable of producing 4.1W of optical power/equivalent lumens.
- The system should generate optimum light with different wavelengths to support standard white light, infrared and near-infrared modes for enabling surgeons to view critical anatomies if necessary.
- Should have inbuilt touch screen control for ease for operation.
- Should have automatic brightness control facility.
- Should be able to adjust the light intensity from 10 to 100% manually from the touch screen if necessary.
- It should have Standby mode which will reduce light output to a minimum, preventing the light cable from generating excessive heat.
- Control of the Light Source should be possible directly from the camera head as well as from the intuitive capacitive LED touch screen on the light source.
- It should have a special safety feature to prevent accidental burns caused by a light cable that is not connected to the scope by automatically moving to the standby mode.
- It should be possible to adjust the light intensity in white light mode and NIR modes up to 4.1W optical power or equivalent.
- Light Source should be separate stand-alone unit and not integrated into camera Control Unit.

- Should be European CE and USA FDA approved.

Fiber Optic Light Cable - Qty 01

- Fiber optic Light Cable 5mm diameter x 300Cms length

It should be compatible with all the telescopes provided

4K Medical Grade Monitor- Qty-1

- Should be a LED Medical Grade Monitor with screen size of 31 inchs-32 inches.
- Monitor native resolution should have minimum 3840X2160 pixels with viewing angle of minimum 178° and aspect ratio 16:9
- Should have these image effects- picture-in-picture, picture-on-picture and picture-by-picture and mirror modes.
- The monitor should be DICOM Compliant
- Should have these input terminals - HDMI x1, DisplayPort x1, DVI x1, 3G-SDI x 1.
- Monitor should have these output terminals - DisplayPort x1, DVI x1, 3G-SDI x 1.
- Should meet European CE or USA FDA approval standards.

Telescopes – 1 each

- 10mm 30-degree, 33cm length – 1no
- 5mm 30-degree, 30cm length - 1no
- Should be compatible with NIR fluorescent imaging technology.
- Aspherical Lens Technology for minimized optical distortion.
- Laser welded enclosures for increased quality and durability.
- Should be Autoclavable.

Should be European CE and USA FDA approved

Insufflator- 1 unit

- Insufflator with a minimum flow rate of 1Ltr/min and maximum flow rate of 50Ltr/min
- Should have an intuitive LCD display and touch interface for easy navigation.
- Should have Indicator for remnant/ consumed gas

- Should give visual/audible alarms to alert abnormalities.
- Should be capable of providing warm Co2 throughout the procedure with the temperature control where User can vary the temperature of the C02 gas to suit the patient's requirement to avoid hyperthermia.
- Should have Indicator for remnant/ consumed gas
- Unit should include reusable tubing.
- Should the CE certified.

4K Image and Video Management system – 1 unit

- Should have provision to record the images and video at a resolution of 3840X2160p.
- Should have an inbuilt LCD display with screen size of 8" or more.
- Should have touch screen control for ease of operation.
- Should be compliant with medical standards.
- It should have an inbuilt storage memory of 1TB or more for failsafe data backup.
- Should have USB 3.0 ports for faster data transfer
- It should have HDMI/3G-SDI input and output ports supporting both 4K and HD formats.
- Should be able to capture still images in multiple formats like JPEG, PNG, BMP etc.
- It should support external storage devices like USB Flash Drive and USB Hard Drive
- Should have provisions like microphone, line in and line out for the live audio recording if required.
- Should have provisions for inbuilt LAN and Wi-Fi network connections to support DICOM, FTP and Cloud Integration
- Key functions such as video recording (Start and Pause) and image capturing should be controllable from the camera Head to maintain the sterility.
- Should support wireless transmission at both 2.4GHz and 5GHz
- Should support DICOM integration.
- Should be European CE or USA FDA be approved.

Trolley – 1 no with one set of accessories

Laparoscopy/Endoscopy Trolley with flexible monitor arm with 90 degree rotation.

- The Trolley should have four or more adjustable shelves and provision to mount the CO2 cylinder.

- The Trolley should have 4" to 5" Caster Wheels with smooth movements.
- Should have Electrical shock protection – class 1, Degree of shock protection – Type B and Ingress protection – IPX4
- Should be CE certified.

Trolley should have following hand instruments -one set consisting of

5.5 mm trocars cannula set- 3 nos

11 mm trocars cannula set- 2 nos

Maryland curved dissection forceps- 1 no

Debakey Grasping forceps- 1 no

Babcock Grasping Forceps- 1 no

Metzenbaum Scissor- 1 no

L hook monopolar electrode- 2 nos

Knot pusher- 1 no

Atraumatic Grasping forceps- 1 no

5 mm Instruments (Bipolar)- Maryland curved dissection forceps- 1 no

Suction Irrigation Pump with All accessories- 1 no

Claw forceps- 1 no

Endo clip applicator (3 in 1)- 1 no

Cables- Monopolar cables- 2 nos

Cables- Bipolar cables- 2 nos

Reducer- 10mm to 5mm- 2 nos

Suture passer- 1 no

Verses needle 120mm- 1 no

Electro Surgical Spatula- 2 nos

Suction Irrigation trumpet Valve 5mm- 1 no

Verses needle 150mm- 1 no

Onsite demonstration is essential and must